DEVELOPMENT OF STRATEGIES TO REDUCE UNMET NEED FOR MODERN CONTRACEPTION AMONG AGRO-PASTORAL WOMEN IN EASTERN ETHIOPIA

by

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I declare that the above thesis is my own work and that all the sources I used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

27 April 2020

SIGNATURE **DATE**

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ABSTRACT

The aim of the study was to develop strategies to reduce the unmet need for modern contraception among agro-pastoral women. The objectives of the study were to determine the prevalence of unmet need for modern contraception, determine the factors associated with unmet need for modern contraception, and explore the barriers that hindered agro-pastoral women from using modern contraception.

A mixed-method research design was used to conduct the study. Data were collected from agro-pastoral women and family planning service providers. Questionnaire and individual in-depth interviews were used to collect the data. The validity and reliability of the quantitative data and trustworthiness of the qualitative data were ensured. Use of standard data collection tools, employing method and data triangulation, and documenting all the procedures of data collection and analysis were among the ways employed to do so The quantitative data were analysed using simple descriptive statistics and multivariate logistic regression. Thematic analysis was employed to analyse the qualitative data. Ethical principles of research such as beneficence, justice, informed consent, respect for persons, privacy and confidentiality and scientific integrity were considered to conduct the study.

The study revealed an unmet need of 29.2% (n=112) for modern contraception among agro-pastoral women. The unmet need for birth spacing constituted 21.1% (n=81), whereas the unmet need for birth limiting was 8.1% (n=31). The age of the women, the number of living children, knowledge of modern contraceptive methods, and knowledge of FP service centres were found to be associated with women's unmet need for

modern contraception. Lack of time and money, lack of knowledge about modern contraception, and fear of side effects were the major individual-level barriers. There were also culture-related factors such as the need for many children that hindered agro-pastoral women from using modern contraception. Moreover, the study disclosed that religious unacceptability and husband's and relatives' opposition were also among the mentioned barriers. The quality of FP service provision in terms of the competence and behaviour of health service providers, unavailability and inaccessibility of FP service, were also indicated as barriers.

The findings informed the development of strategies to reduce agro-pastoral women's unmet needs for modern contraception in Eastern Ethiopia. The study further recommended that the health bureaus of the region, zone and district collaborate in ensuring that agro-pastoral women realise the significance of the provision of accessible, equitable, quality modern contraception. It is also essential to equip health facilities with qualified health service providers and necessary facilities. Religious leaders should be involved in disseminating vital, relevant and empowering FP information.

Key concepts

Agro-pastoral women; barriers; birth limiting; birth spacing; family planning; modern contraception; reproductive ages; strategies; unintended pregnancy; unmet need.

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Dedication

This thesis is dedicated to pastoral and agro-pastoral women who are suffering due to unintended pregnancies and preventable pregnancy complications.

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LIST OF ABBREVIATIONS

AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
CSA	Central Statistical Agency
FAO	Food and Agriculture Organization of United Nations
FGAE	Family Guidance Association of Ethiopia
FP	Family Planning
HBM	Health Belief Model
IUD	Intrauterine Device
LAM	Lactational Amenorrhea Method
MDG	Millennium Development Goals
MoH	Ministry of Health
NSO	National Statistical Office
PHC	Primary Health Care
SDG	Sustainable Development Goals
SDM	Standard Days Method
SPSS	Statistical Package for the Social Sciences
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
VIF	Variance Inflation Factor
WHO	World Health Organization
x^2	Chi-Square

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Rapid population growth has been among the challenges that developing countries are facing in the process of various development interventions (United Nations [UN] 2015b:4). Although the importance of labour-power in countries whose economy relies on agriculture is an undeniable fact, the effect of population explosion becomes immense if left uncontrolled (Grant 2016:7). In this regard, Malthus, a demographic theorist, argues that the rate of population growth has been faster than the earth's capacity to produce food, and such increase would create a significant problem in terms of people's livelihood (Essien 2016:146; Kosamu, De Groot, Kasambara, Kaonga, Patrick, Kambewa & Nagoli 2016:156). In support of Malthus, another theoretician, Boserup, also argues that overpopulation can lead to farming practices that may cause land degradation, though she has a different stand on the role of technology (Kosamu et al 2016:156).

The number of people living in poverty in developing countries is rapidly increasing; as a result, governments in those countries are experiencing difficulties in fulfilling the needs of their citizens (Mahmood, Hafeez, Masood, Faisal & Ramzan 2016:871). Among the 83 million people annually added to the existing population, Africa contributes to more than half of this number (UN 2017b:2-3). This population growth defeats the developing countries' efforts to eradicate poverty, inequality, basic service provisions, combat hunger and expand health facilities (Mosha, Mgimwa & Msuya 2017:335; UN 2015b:4).

Family planning (FP), in the context of sexual reproductive health, plays a multifaceted role in improving the quality of health of mothers and children (Cleland, Conde-Agudelo, Peterson, Ross & Tsui 2012:149; Starbird et al 2016:191). It enhances the wellbeing of children by giving the mothers intervals between pregnancies (Babiarz, Lee, Miller, Peng & Valente. 2017:12; Cleland et al 2012:149). FP has also been found to reduce the number of abortions conducted by unskilled providers (Ali, Seuc, Rahimi, Festina & Temmermana 2014:93) and controls the spread of the Human Immunodeficiency Virus

infection/Acquired Immune Deficiency Syndrome (HIV/AIDS) (Starbird, Norton & Marcusa 2016:195). Endriyas, Eshete, Mekonnen, Misganaw, Shiferaw and Ayele (2017:1) assert that the benefits of FP range from women's educational attainment and improved child health outcomes, to building solid family structures and strong national economies. Above all, letting women meet their own desires concerning their pregnancies is at the top of any development agenda (Aviisah, Ishmael, Norman & Enuameh 2017:2229).

Modern FP services in Ethiopia were pioneered by the Family Guidance Association of Ethiopia (FGAE), established in 1966 (Ministry of Health [MoH] [Ethiopia] 2011:11). Ethiopia is a country situated in the horn of Africa, with a population of 105 million (Population Reference Bureau 2017:9). Yet, although the prevalence of modern contraception has increased in Ethiopia, the Somali region is experiencing the lowest prevalence of contraceptive utilisation (Central Statistical Agency (CSA) & ICF 2017:105).

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

1.2.1 Source of the research problem

The researcher had read and observed that millions of women of reproductive age die due to pregnancy-related complications. Most of these maternal deaths seemed to happen to those women whose pregnancies were not intended. Moreover, because of an inability to space births, women are faced with pregnancy complications that end either in death or life-long complications. This indicates that contraceptive needs, especially the modern ones, have not been met. The unmet need, compared with the demand, was particularly high among agro-pastoral women. This situation called for an investigation into the factors influencing the failure to meet these women's modern contraceptive needs, followed by proposing strategies. The observed problem has been strengthened by scholarly discussions in the existing literature. For example, the prevalence of the unmet need for modern contraception among married women of reproductive age in Misha District of Southern Ethiopia was 26.5%, and 31.2% of the respondents were using modern contraceptive methods (Chafo & Doyore 2014:4). The unmet need for modern contraception was high among pastoral and agro-pastoral areas

of the Somali region compared to the demand (CSA [Ethiopia] & ICF 2017:105). As to CSA [Ethiopia] and ICF (2017:117), the unmet need for contraception was 12.6% while the demand was 14.1% in the Somali region. Moreover, it was also difficult to find research among pastoral and agro-pastoral societies with regard to women's unmet need for modern contraception.

1.2.2 Background to the research problem

The benefits of contraception have been emphasised by many scholars as it serves multidimensional purposes (Chola, McGee, Tugendhaft, Buchmann & Hofman 2015:2; Okigbo, Speizer, Domino & Curtis 2017:66). A reduction of maternal and infant mortality happens mainly because of effective contraception (Ahmed, Li, Liu & Tsui 2012:123). FP protects women from exposure to premature deaths as a result of poor birth spacing and resultant pregnancy complications (Ministry of Health (MoH) [Ethiopia] & United Nations 2014:35). Contraceptives avert about 10 % of child deaths in countries where high fertility prevails (Tegegne, Chojenta, Forder, Getachew, Smith, Loxton 2020:1). Although the global maternal mortality ratio declined by 44% from 1990-2015, 385 maternal deaths still occur for every 100,000 live births (United Nations International Children's Emergency Fund [UNICEF] 2018).

Modern contraception safeguards women in the reproductive age from induced abortion (Beson, Appiah & Adomah-Afari 2018:2). The use of modern contraception prevents about 307 million unintended pregnancies annually among all women of reproductive age in developing regions (Darroch, Audam, Biddlecom, Kopplin, Riley, Singh & Sully 2017). Most of the time, unintended pregnancies ended in induced abortion (Kassie, Moges, Ali & Tefera 2017:1). Even though unintended pregnancy is a problem among all populations in society, it is the women and children who suffer most (Mulat, Fekadu, Abera, Bekele & Bedaso 2017:1). The numbers of women who undertake unsafe abortion reduce by 26 million annually if they use modern contraception (Guttmacher Institute 2020), and the demand for FP supported with modern contraceptive methods has emerged as a key indicator of contraception availability and use (Population Reference Bureau 2017:6).

Modern contraception utilisation worldwide increased from 54% to 57.4% between 1990 and 2015, respectively (WHO 2018a). However, the current prevalence rate in the

developed countries is much higher than the developing ones; it ranges between 69% and 78% in the developed countries, and in some developing countries it goes down to 8% (Tsehaye, Mengistu, Birhanu & Berhe 2013:1).

Meeting citizens' needs for modern contraception is one of the priority agendas in Ethiopia. The contraceptive prevalence has shown progress since it has been introduced and has increased from 6% in 2000 to 35% in 2016 (CSA [Ethiopia] and ICF 2017:103). The improvement in contraception use is manifested in the decline of maternal deaths in the country; the maternal mortality ratio decreased from 1250 per 100,000 live births in 1990 to 385 per 100,000 live births in 2015, owing to the use of modern contraception (UNICEF 2018). In spite of this, 11,000 maternal deaths were reported in 2015 (WHO 2015:52).

In Ethiopia, the prevalence of modern contraception varies from region to region. As to the CSA (Ethiopia) and ICF (2016:16), the highest and lowest prevalence has been recorded in Addis Ababa Administration (56%) and the Somali region (2%), respectively. Studies that have been conducted in various parts of the country have also provided different prevalence rates. A study conducted in Debre Markos (Ethiopia) indicated that 62.2% of women were using modern FP methods (Bulto, Zewdie & Beyen 2014:5). The utilisation of modern contraceptive methods in Nekemte Town (Western Ethiopia) and Kersa (Eastern Ethiopia) were found to be 71.9% (Tekelab, Melka & Wirtu 2015:5) and 41% (Musa, Assefa, Weldegebreal, Mitiku & Teklemariam 2016:4), respectively. However, the contraceptive prevalence has been comparatively low in pastoral/agro-pastoral areas as compared to other parts of the country (CSA [Ethiopia] & ICF 2017:105). Among the married pastoralists in Bale Zone, South East Ethiopia, in a study conducted by Belda, Haile, Melku and Tololu (2017:5), 20.8% of respondents used modern contraceptive methods. A study conducted in Afar, Somali, Gambella and Benishangul-Gumuz regions revealed that 11% of the respondents used any method of FP available to them (Bogale & Mekonnen 2017:58).

Despite the global improvements in the use of modern contraceptive methods, the unmet need is unacceptably high in the developing countries (UN 2017a:8). In 2014, 225 million women in the developing world had an unmet need for modern contraceptive methods as reported by Singh, Darroch and Ashford (2014:14). A recent study by Darroch et al (2017) found that 214 million women of reproductive age in

developing regions who wanted to avoid pregnancy were still not using modern contraceptive methods. This unmet need for modern contraceptive methods has also been manifested in various ways. For example, in 2012, approximately 85 million pregnancies, representing 40% of all pregnancies globally, were unintended (Sedgh, Singh & Hussain 2014:308). About 84% of unintended pregnancies in developing countries occur due to the women's unmet need for modern contraception, and if the need was satisfied, there would be an approximate 67% decline in unintended pregnancies (Darroch et al 2017).

As to a study conducted in Eastern Sudan by Ali and Okud (2013:3), 44.8% of married women of reproductive age had an unmet need for contraception. The unmet need for FP in Rawalpindi city (Pakistan) was found to be 17.76% (Mahmood et al 2016:874). Similarly, 48% of married women were reported to have had an unmet need for modern contraception in Gulmi District (Nepal) (Kandel 2012:13), and in rural areas of Burkina Faso, the prevalence of unmet need for modern contraception among married women was 40.7% (Adebowale & Palamuleni 2014:505).

The unmet need for FP in general, and modern contraception in particular, has also been high among women of reproductive age in the different parts of Ethiopia. The overall unmet need for FP in Shire-Enda-Slassie (Tigray Region, Ethiopia) was 21.4% (Gebre, Birhan & Gebreslasie 2016:4) and 41.5% of women had an unmet need for FP in Southern Ethiopia (Shifa & Kondale 2014:28). In Awi Zone, 17.4% of married women had an unmet need for FP (Genet, Abeje & Ejigu 2015:3). A study conducted in Misha District (Southern Ethiopia) also revealed that the unmet need for modern contraception among married women was 23.3% (Chafo & Doyore 2014:5).

1.2.3 Statement of the research problem

Ethiopia, with the current fertility rate of 4.6 (CSA [Ethiopia] & ICF 2017:77), is the second-most densely populated country in Africa. If the status quo remains, the population of Ethiopia will reach a stage which has economic, social and political implications on the livelihoods of the citizens. Although the Population Policy of Ethiopia drafted in 1993 called for action to reach a contraceptive prevalence of 44% by 2015 (National Population Policy of Ethiopia 1993), only 35.9% of married women of reproductive age used contraception in 2016 and, of those, 35.3% were using modern

contraception (CSA [Ethiopia] & ICF 2016:17). Lailulo and Susuman (2014:657) argue that the current use of any form of contraceptive methods is still low in Ethiopia, let alone use of modern contraception. The seriousness of the problem can also be seen from pregnancy-related complications and high rates of maternal deaths in the country. Within the seven years before 2016, the estimated pregnancy-related mortality ratio in Ethiopia was 412 deaths per 100,000 live births (CSA [Ethiopia] & ICF 2017:252).

Despite the efforts that have been made to give reproductive-aged women access to contraceptive methods through health extension programmes, the country has been faced with challenges in meeting the modern contraceptive needs of women in pastoral and agro-pastoral areas. Due to this fact, the fertility among these areas is the highest. Bogale and Mekonnen (2017:57) indicate that fertility has been higher in rural communities with pronounced rates in pastoralist and agro-pastoral areas, and low FP use remains a significant public health concern in these areas. Pastoral women are also suffering due to double marginalisation of being pastoralist and women (Eneyew & Mengistu 2013:105), which has a direct influence on their utilisation of contraception.

Alemayehu, Lemma, Abrha, Adama, Fisseha, Yebyo, Gebeye, Negash, Yousuf, Fantu, Gebregzabher and Medhanyie (2016:2) argue that even though the demographic and health surveys (DHS) in Ethiopia have tried to identify why women are not using FP, it was superficial and they did not dig out the root cause for women not using FP resources. Thus, it is essential to have a detailed analysis of the reasons or the barriers that hinder agro-pastoral women from having their needs for modern contraception met in order to develop effective and efficient contextual interventions. Moreover, there has been a tendency to overlook FP service delivery, which has a great influence on the effort of promoting modern contraception utilisation and reducing unmet need. As the concept of ‘unmet need’ has been revised recently, it also calls for a timely study.

In the Somali region, the prevalence of modern contraception has been declining in the last five years. The contraceptive prevalence rate in the region was 4.3% and 1.5% in 2011 and 2016, respectively (CSA [Ethiopia] & ICF 2012:10; CSA [Ethiopia] & ICF 2016:17). The unmet need has also not decreased in the last five years. As to CSA [Ethiopia] and ICF (2016:20), the need for contraception being met was 1.5%, while the unmet need remained at 12.6%. This indicates that although women of reproductive age in the region need contraception, about 89% of them were not able to meet their FP

needs. Moreover, among all the regions in Ethiopia, the highest fertility rate (6.4) is found in the Somali eastern region among the agro-pastoralist women (CSA [Ethiopia] 2014:29). Therefore, the research statement of this study asks: “What strategies can be developed to reduce the unmet need for modern contraception among agro-pastoral women in Eastern Ethiopia?”

1.3 AIM OF THE STUDY

1.3.1 Research purpose

The research purpose is a concise, clear statement of the aim of the study that establishes and captures the essence of the study by giving an overall summary of its goal (Polit & Beck 2012:92). It refers to a determination of what the researcher intends to do (LoBiondo-Wood & Haber 2014:34).

The purpose of this study was to develop strategies to reduce the unmet need for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State, Eastern Ethiopia.

1.3.2 Research objectives

The objectives of this study were to

- determine the prevalence of agro-pastoral women’s unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- determine the factors that influence the agro-pastoral women’s unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- explore and describe barriers that hinder agro-pastoral women from using modern contraception in the North Jigjiga District of Somali Regional State
- develop strategies to reduce the unmet need for modern contraception among agro-pastoral women of the North Jigjiga District of Somali Regional State

1.3.3 Research question

A research question is a question that a researcher uses to show what issue needs to be addressed with the conducted study (O'Dwyer & Bernauer 2014:40). Research question refers to a central question that guide a research project, and a question that a researcher seeks to answer (Leavy, 2017:71).The research questions of this study were formulated based on the population, intervention, comparison and outcome (PICO) approach (Grove, Burns & Gray 2013:703). The details of the application of this approach are discussed in Chapter 3.

The developed research questions for this study were:

- What is the prevalence of agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State?
- What factors influence the agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State?
- What are the barriers that hinder agro-pastoral women from having their modern contraception needs met in the North Jigjiga District of Somali Regional State?
- What strategies could be developed to reduce the unmet need for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State?

1.3.4 Hypothesis of the study

A research hypothesis ($H_{1\ or}\ H_{a)}$ is the alternative to the null and is, according to Creswell (2014:143), the prediction that a researcher makes about the expected outcomes of the relationship among study variables. Testing of hypotheses employs statistical procedures in which the researcher draws inferences about the population used in the study sample (Creswell 2014:143). A hypothesis is a specific statement of prediction (Binoy, 2019:31). Binoy (2019:31) futher notes that a hypothesis is a tentative explanation a researcher considers what the outcome of a study would be (Binoy, 2019:31). A hypothesis is "a statement predicting how variables relate to each other and that can be tested through research" (Leavy, 2017:69).

1.3.4.1 Research hypothesis

There was a significant association between unmet needs for modern contraception and unintended pregnancies among agro-pastoral women in the North Jigjiga District of Somali Regional State, Ethiopia.

1.3.4.2 Null hypothesis

There was no significant association between the unmet need for modern contraception and unintended pregnancies among agro-pastoral women in North Jigjiga District of Somali Regional State, Ethiopia.

The study's hypothesis will be discussed in detail in Chapter 3.

1.4 STAGES OF THE STUDY

Three stages were followed to conduct the study, as exhibited in Figure 1.1.

The first stage was related to conceptualising the research problem, which was essential to internalising the current status and gaps in the topic of the study. The second stage focused on designing and planning the study. The selection of an appropriate design and methods was critical for the research to establish a valid and reliable result. The third stage, the empirical phase, was concerned with the implementation of all the research methods that were planned, executed and producing results that gave appropriate answers to the research questions.

Figure 1.1 Stages of the study

1.4.1 Stage 1: The conceptual phase

The conceptual phase was the first stage in the research, whereby the selected researchable idea was realised. To this end, literature was used in order to identify the problem and its extent, the significance of the study, the state of knowledge in regard to the unmet need for modern contraception, and where the gap lay. The background of

the study, research questions, objectives and hypotheses were developed in this stage. Based on the reviewed literature, the theoretical foundation was presented.

1.4.2 Stage 2: Design and planning phase

Developing an appropriate research design is one of the essential aspects of research (Edmonds & Kennedy 2017:1). It is hardly possible to establish reliable and valid results if the design has not been well drafted. Ways to ensure the ethical conduct of the research are also part of the planning. To this end, the researcher designed an appropriate sampling plan, data collection procedures and a data analysis plan. Different methods were used to ensure the validity and reliability/trustworthiness of the collected data. Moreover, the researcher consulted with a biostatistician regarding the statistical analysis findings. Ethical clearance was obtained from the concerned bodies to collect the data for the research (Annexure A).

1.4.3 Stage 3: The empirical phase

In this stage, data were collected from the sampled respondents of the second phase using an interviewer-administered questionnaire and individual in-depth interviews. The collected data were analysed using appropriate software, and the results were presented. Strategies were also developed to help FP service providers improve agro-pastoral women's utilisation of modern contraception in order to reduce their unmet need for contraception.

1.5 DEFINITIONS OF TERMS

The concepts used in this study are conceptually and operationally defined as follows:

1.5.1 Agro-pastoral

Agro-pastoral is defined as a practice of agriculture or related to it which includes both the cultivation of crops and raising of livestock (Merriam-Webster dictionary [s.a.]). In this study, agro-pastoral women refer to those women of reproductive age, permanently settled in a particular area, whose livelihood depends on both crop and livestock production.

1.5.2 Modern

As to Merriam-Webster dictionary (2016:462) modern refers to anything 'relating to or characteristic of the present or immeditte past' In this study, 'modern' is defined as anything that can be used or applied whenever needed regardless of other factors. It is also seen as anything that is not considered traditional.

1.5.3 Contraception

Contraception refers to methods of family planning which is applied to prevent pregnancy due to coital act (Sunita, Reena & Deepika 2020:483). Gebremeskel, Getahun, Kanko, Tilahun, Endrias, Alamirew, Gemeda and Desalegne (2017:448) define 'contraception' as a planned action of controlling birth. In this study, contraception is defined as any method that is used to limit or space birth.

1.5.4 Modern contraception

Modern contraception is contraception designed to overcome biology, which enables the partners to have sexual intercourse whenever they wish to do so (Hubacher & Trussell 2015:420). Modern contraception methods include oral contraceptive pills, implants, injectables, patches, vaginal rings, diaphragms, the intrauterine device (IUD), male and female condoms, vasectomy or female sterilisation (Rawe 2012:4).

In this study, modern contraception means any method (oral contraceptive pills, implants, injectables, patches, vaginal rings, diaphragms, the IUD, male and female condoms, vasectomy or female sterilisation) that can be used at any time, regardless of other conditions. Calendar-based methods (the calendar method and standard day's method), lactation amenorrhea method (LAM) and withdrawal methods are not considered modern contraception in this study.

1.5.5 Strategy

A 'strategy' is defined as a carefully devised plan of action to achieve a goal, (*Encarta Dictionary* 2009; Merriam-Webster dictionary 2016:706). In this study, strategies refer to concrete suggestions based on the study findings that were developed to guide FP

service providers on how to meaningfully treat clients who visit health facilities for modern contraception, and other stakeholders who are responsible for reproductive health.

1.5.6 Women

Woman is defined as an adult female person (Merriam-Webster dictionary 2016:838).
In the study, women refer to any married female whose age is between15-49.

1.5.7 Unmet need

The concept of 'unmet need' refers to the "gap between women's reproductive intentions and their contraceptive behaviour" (WHO 2018b). Women with an unmet need are "those who are sexually active and fecund but are not using any method of contraception, and report not wanting any more children or wanting to delay the next child" (WHO 2018b).

In this study, an unmet need for modern contraception refers to the percentage of married or in-union agro-pastoralist women of reproductive age who want to stop, limit or postpone (space) childbearing, but who report that they are not using a modern method of contraception to prevent pregnancy. Unmet need for modern contraception is the sum of women's unmet need for birth spacing and unmet need for birth limiting.

1.5.7.1 Unmet need for birth spacing

Women with an unmet need for birth spacing are those who are not currently using a method of contraception, not currently pregnant or amenorrhoeic, are able to bear a child (fecund), and want to delay the next birth for two or more years (Bradley, Croft, Fishel & Westoff 2012:11). Women with an unmet need for birth spacing can also be those who are not currently using a contraceptive method, are pregnant, or amenorrhoeic, or had a current pregnancy/last birth that was mistimed and want to delay the next birth (Ayele, Tesfaye, Gebreyes & Gebreselassie 2013:5).

1.5.7.2 Unmet need for birth limiting

Women with an unmet need for birth limiting are those not currently using a method of contraception, not currently pregnant or amenorrhoeic, able to bear a child (fecund), but want to stop childbearing; or women who are not using a method of contraception but who are pregnant or amenorrhoeic, and have an unwanted pregnancy and want no more children (Ayele et al 2013:5).

1.6 THEORETICAL FOUNDATIONS OF THE STUDY

Scientific studies need a theoretical framework or model to guide the data collection and analysis process (Fox, Gardner & Osborne 2014:70). In this study, the Health Belief Model (HBM) adopted from Hall (2012:75) and the Primary Health Care (PHC) (World Health Organisation 1978) model were used as theoretical bases to guide data collection, analysis and the development of intervention strategies. Meta-theoretical assumptions which are ontological, teleological, epistemological and methodological were also considered.

1.6.1 Health Belief Model

The HBM is a cognitive, interpersonal framework that views humans as rational beings who use a multidimensional approach to decision-making regarding whether or not to perform a health behaviour (Hall 2012:75). The model was developed in the 1950s as a way to explain why medical screening programmes offered by the United States Public Health Service, particularly for tuberculosis (TB), were not very successful (Hayden 2014:31). The model can be adapted to contraceptive behaviour if one views pregnancy as an undesirable state to avoid (Mohsen, El-Abbassy & Khalifa 2016:55). It can also be used to explain perceptions and practices about the method of contraception (Abraham and Sheeran 2015:34; Brown, Ottney & Nguyen 2011:453). The model is composed of seven constructs which are perceived susceptibility, perceived severity, perceived barriers, perceived benefits, modifying variables, cues to action, and self-efficacy. These constructs will be discussed in detail in Chapter 2.

1.6.2 Primary Health Care Model

According to the Alma-Ata Declaration in Geneva by the World Health Organization (WHO) (1978:3), PHC is defined as essential care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation. The services are at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.

The PHC model is one of the models that can be used to describe the behaviour of service users and health care service delivery (Rowan, Gesuale, Husband & Longfield 2019:2). Thus, this model was used in this study to assess modern contraception service provision in the study area from the perspectives of the women and FP service providers. The model considers availability (if the modern contraceptive services are obtained whenever the agro-pastoral women need it), accessibility (whether the modern contraceptive services are available for utilisation), affordability (if the women can afford to pay for services related to modern contraception), acceptability (if the service is appropriate in addressing the modern contraceptive needs of the agro-pastoral women taking cultural/religious and other factors into consideration), and adequacy (if there is an adequate and continued supply of modern contraceptive services). A detailed description of the models will be given in Chapter 2.

1.6.3 Meta-theoretical assumptions

Assumptions can serve as an important springboard to build theories. Neuman (2014:61) defines ‘assumption’ as “an untested starting point or belief that is necessary in order to build a theoretical explanation”. The correctness of assumptions can be checked through gathered data which show the reality (Nayak & Singh 2015:55). Meta-theories are also developed from these assumptions. Finkel (2014:6-7) defines ‘meta-theory’ as a set of assumptions which direct the development of research questions. Concerning a study of the unmet need for modern contraception, it was assumed that the agro-pastoral women had their own perception and knowledge concerning the use of modern contraception in order to either limit or space births. However, their perception, knowledge and needs could be influenced by various factors.

The study considered ontological, teleological, epistemological and methodological assumptions, as discussed next.

1.6.3.1 Ontological assumptions

Ontology refers to 'the philosophical study of existence, being or reality' (Schneider, Whitehead, LoBiondo-Wood & Haber 2016:398). According to Bhattacherjee (2012:18), ontology refers to our assumptions about how we see the world. Ormston, Spencer, Barnard and Snape (2014:4) argue that ontological assumptions refer to questions that arise whether there is a social reality independent of human conception and interpretation or not. They further note that ontology inquires if there is a social reality that is shared, or if there is multiple reality or context-specific reality (Ormston et al 2014:4). The ontological assumptions of this study were that:

- Agro-pastoral woman is an individual human being with personal health needs and expectations.
- Agro-pastoal women's health care needs are often fulfilled within an organised health care system of service that is fair and that meets their needs to their expected satisfaction.
- Agro-pastoral women have a right to receive quality care from competent health service providers.
- Agro-pastoral women have a right to decide whether or not to use modern contraception based on what they assume to be appropriate in their own life and that of their society or culture.

1.6.3.2 Teleological assumptions

A teleological assumption is an assumption that shows any activity of human beings to achieve a specific goal (Mouton & Marais 1996:19). It is "an assumption that a decision behind certain conduct has to be based on an assessment of a respective outcome" (Baumane-Vitolinaa, Calsa & Sumiloa 2016:110). The teleological assumptions behind this study were that:

- Women have their own intentions of limiting or spacing birth when they decide to use modern contraception.

- Agro-pastoral women restrict themselves from using contraception because their husband may leave them to marry other women or the community may cast them out.

1.6.3.3 Epistemological assumptions

Epistemology refers to the theoretical study that involves search for knowledge and truth (Schneider, Whitehead, LoBiondo-Wood & Haber 2016:396). Scotland (2012:9) states that epistemological assumptions are the various ways in which people come to learn and know about the world. There are several ways that people learn what really exists and what happens around the globe. One of the knowledge factors they acquire is related to the issues of FP. The epistemological assumptions in relation to this study were that:

- Agro-pastoral women learn about what is expected from them as married women through socialisation.
- Because of the economic, psychological and health consequences of giving birth to many children, women may prefer to use modern contraception.
- The factors of the HBM are fundamental guidelines on how women with an unmet need for modern contraception should be treated as a partner in health services to make decisions based on their perceptions.
- The application of the elements of the PHC model, such as availability, accessibility, affordability, acceptability and adequacy, is comprehensive enough to evaluate the quality of the reproductive care given to the agro-pastoralist women in the health care services.

1.6.3.4 Methodological assumptions

The methodology is concerned with why, what, from where, when and how data are collected and analysed (Scotland 2012:9). The methodological assumptions of this study were:

- A mixed-method approach (qualitative and quantitative) was used in order to have a better understanding of the problem under study, and it is the best option to investigate complex phenomena.
- Exploratory and descriptive research designs are aimed at exploring the various views of people and describing it well.
- Quantitative research is most often associated with the precise measurement and quantifying of phenomena and involves rigorous and controlled research designs (Polit & Beck 2010:565).
- Qualitative research is helpful in exploring complex phenomena. In the study, the qualitative research is assumed to explore the barriers that hinderd agro-pastoral women from using modern contraception.
- Survey studies are helpful in obtaining information concerning views, beliefs, opinions or ideas through direct questioning using questionnaires.
- Quantitative studies are based on theoretical or conceptual frameworks. The study employed theoretical models.
- The use of random samples prevents contamination of data by the researcher's values, feelings, opinions, experiences and personal perceptions. The respondents of the quantitative data were taken randomely.

1.7 SETTING

Eastern Ethiopia contains Somali and Harari regional states, Dire Dawa Administration, eastern part of Oromia and southern part of Afar regional states. The study was conducted in the Somali Regional State of Ethiopia, which is the second largest region with an estimated area of 350,000 square kilometres (Jonason & Solomon 2014:9). It is one of the four major pastoral and agro-pastoral areas in the country (Jonason & Solomon 2014:9). Somali is found in the eastern part of Ethiopia and it has 11 administrative zones. In 2014, a projection was made based on the 2007 CSA (Ethiopia) census that the total population in Somali was 5,307,000 (UNICEF 2016). Agro-pastoralism comprises about 25% of the total rural population of the region (Brocklesby 2013:26). The Somali region is an area where the prevalence of modern contraception is the lowest of all the regions of the country (CSA [Ethiopia] & ICF 2017:114).

The study was conducted in North Jigjiga District of Fafan Zone where most of the agro-pastoralists live. Four centres were selected from the North Jigjiga District, namely Haroris, Lemedega, Yosle and Harta Albelo. Four *kebele* (the smallest administrative unit in Ethiopia) were selected from Haroris, and three were selected from Harta Albelo centres. Two *kebeles* were selected from Lemedega and Yosle centres each. The residents of these *kebeles* were predominately agro-pastoralists.

1.8 RESEARCH DESIGN AND METHOD

1.8.1 Research design

A research design is "the framework or plan for a study that is used as a guide in collecting and analysing the data" (Pandey & Pandey 2015:18). The choice of design depends on the nature of the research problem to be studied (Walliman 2011:9).

"Research design is necessary because it makes possible the smooth sailing of the various research procedures" (Akhtar 2016:71). The study employed mixed-method, exploratory and descriptive designs.

Mixed-method research refers to a research design that combines qualitative and quantitative research in a systematic manner (Creswell & Hirose 2019:2). Guest and Fleming (2015:582) indicate that mixed-method research potentially responds to research questions better than single research designs. Quantitative research designs can be defined as a design which is intended to quantify certain phenomena, and the goal is mainly to make generalisations to the whole population based on the sample taken (Park & Park 2016:4). This method focuses on fresh data collection in accordance with the problem from a large population and an analysis of the data (Neuman 2014:43). The other research design is the qualitative research design. The motivation behind conducting qualitative research is obtaining an in-depth understanding of the topic under investigation (Parahoo 2014:484; Hennink, Hutter & Bailey 2011:10; Rahi 2017:2).

Exploratory and descriptive designs were also employed in the study. Exploratory research is a way of learning about certain topic, and it can be used to fill a gap in our knowledge about a new or under researched topic (Leavy 2017:5). Descriptive research

explores and explains an individual, group or a situation. Akhtar (2016:75) states that descriptive research gives accurate information about the situation someone is researching. Furthermore, it has been argued that descriptive research is appropriate when we want to describe individuals, groups, activities, events, or situations (Leavy 2017:5).

1.8.2 Research method

Having appropriate research methods is a prerequisite to conducting meaningful research. Research method refers to specific procedures applied to collectr and analyse data of a study (Schneider, Whitehead, LoBiondo-Wood and Haber 2016:400). Patten and Newhart (2018:3) take research methods as the building blocks for scientific investigations. To this end, the research method that was employed in this study included the sample and sampling techniques, sample size, data collection and analysis methods. Moreover, suitable strategies of ensuring validity – reliability for the quantitative aspect, and trustworthiness for the qualitative aspect – were also used.

1.8.2.1 Population

There are always groups of people from which a researcher wants to derive information on a specific phenomenon. These people are called the population of a study. A universal population refers to the entire mass of observations, which is the parent group from which a sample is to be drawn (Pandey & Pandey 2015:40). The universal population of this study was all reproductive-aged agro-pastoral women in Ethiopia. The target population was reproductive-aged agro-pastoral women living in the North Jigjiga district of Somali regional State, and those eligible to participate in the study. Within the target population, the accessible population who participated in the study were recruited using the following criteria.

Inclusion criteria:

- All agro-pastoral women between the ages of 15 and 49.
- Agro-pastoral women who were married or in union.

Exclusion criteria:

- Women who were not agro-pastoralist.
- Women who were not interested in participating.
- Women who were unable to respond because of health challenges.
- Women who considered themselves as infecund.
- Women not living with their husbands.
- Widowed, divorced or separated women.

1.8.2.2 Sample and sampling technique

As the researcher employed the mixed-method approach, sampling methods appropriate for both quantitative and qualitative data were used. The sample for the quantitative phase was representative of the population from which the sample was taken. The sample for the qualitative phase was intended to recruit information-rich participants to answer the research questions, and those who had thick descriptions that adequately explored the situation under study.

(a) Quantitative data

A multistage sampling procedure was used to select respondents for the quantitative phase. Multistage Sampling is a sampling technique where two or more methods of sampling are combined (Alvi 2016:21). The probability sampling technique was used in all the stages. Probability sampling refers to the sampling procedure whereby all sampling units have a non-zero probability of being selected (Bacon-Shone 2015:35).

Firstly, among the Fafan Zone of Somali Regional State, the North Jigjiga District was randomly selected. Secondly, four centres were randomly selected. Thirdly, 11 *kebeles* (the smallest administrative unit) from the four centres were again selected randomly. After obtaining the sampling frame of all reproductive-aged agro-pastoral married women or those in union with a sexual partner in each *kebele*, the systematic random sampling method was applied to select a female respondent in each *kebele*. Every fifth woman was selected until the maximum sample size was reached starting from the first woman in the list (sampling frame). The sampling frame was obtained from the office of

each *kebele's* administrators. The sample size of respondents from each *kebele* was based on probability proportional to size.

- **Sample size calculation**

A formula that is proposed by Cochran (as cited in Rahi 2017:4) was used to calculate the sample size for the quantitative research component.

n = $\frac{(z/2)^2 \, p \, (1-p)}{e^2}$, where

n = sample size
Z = Z values (1.96 for 95% confidence interval)
P = Prevalence form previous studies = 0.13
e = is the acceptable sampling error

After considering the design effect of 2, and a 10% non-response, a total of 383 respondents were selected. The sample size from each centre/kebele, and the sample size calculation, are presented in Chapter 3.

(b) Qualitative data

The purposive sampling method was used to select participants (agro-pastoral women of reproductive age) for the qualitative phase to participate in the individual in-depth interviews. Purposive sampling is a type of non-probability sampling technique. In non-probability sampling, researchers take a sample based on some criteria that meet a specific need (Bacon-Shone 2015:46).

According to Pandey and Pandey (2015:54), purposive sampling is a sampling method which helps to select a sample in relation to criteria which are considered important for the particular study. This study employed purposive sampling based on women's pregnancy status: non-pregnant but fecund, pregnant, and postpartum. Involving them was essential as the researcher was interested in their views and experiences concerning the study phenomenon. As there were sensitive issues to be raised, the interview was conducted in the participants' homes. FP service providers were also

selected to collect data, especially with reference to the contraceptive service delivery. An individual in-depth interview was prepared to collect data from these participants who were reached at their offices.

The sample size for the qualitative phase was not predetermined as data were collected through individual in-depth interviews until data saturation occurred. The interviews were audio-recorded after permission was obtained from study participants and their informed consent was also obtained.

1.8.2.3 Data collection

(a) Quantitative data

Quantitative data were collected through a structured and pre-tested questionnaire via the face-to-face interview technique by trained enumerators. The questionnaire was prepared by reviewing different literature sources on the study phenomenon, including demographic health surveys. The questionnaire was prepared in English and translated to the local language, *Somali*, and then back to English by two different individuals who were qualified in both languages and the research topic. Ten diploma holder nurses/health officers who were fluent in speaking *Somali,* supervised by two BSc nurses/health officers, and the investigator as the primary researcher, were involved in data collection after being trained on confidential matters and the process of data collection.

(b) Qualitative data

Individual, in-depth interviews were conducted to collect qualitative data from the agro-pastoralist women and family planning service providers using an individual in-depth interview. The primary question was: “Tell me, what are the reasons or barriers that influence you not to use modern contraception methods in order to limit or space births?” This question was posed consistently to all the agro-pastoral participants, followed by probing questions.

1.8.2.4 Data analysis

(a) Quantitative data

Data analysis is a process of reducing the large amount of data so as to make meaning out of it (Bryman 2016:11). It is the process whereby the researcher systemically organises and synthesises the research data making inferences about the study phenomenon (Polit & Beck 2012:725). Each completed questionnaire was checked for completeness before manual data entry. The data were then coded with the help of a biostatistician and entered into the Statistical Package for the Social Sciences (SPSS) version 24 software. The data clean-up was done manually to check the accuracy and consistency before analysis. Statistical analysis was conducted by calculating the crude and adjusted odds ratio with 95% confidence interval (CI) to determine the strength of association between the response variable and predictor variables. A p-value of less than 0.05 was considered as a level of significance. Descriptive and summary statistics were also employed. A crude odds ratio (COR) with 95% CIs was calculated using bivariate logistic regression analysis. Variables with a p-value of less than or equal to 0.2 were fitted to multivariate logistic regression to assess the presence and strength of association. A report of the analysis and results was presented and controlled with literature.

(b) Qualitative data

Interviews were captured through a digital recorder and field notebook. Data were then managed by organising and preparing it for analysis. This was done by transcribing the individual interviews verbatim and typing them for analysis.

In this study, thematic analysis was used to analyse the verbatim transcripts for both manifest (obvious) and latent (hidden) content in order to indicate the major themes and categories found in the data. Thematic data analysis involved various processes such as coding, categorising and making sense of the essential meanings of the phenomenon. The steps of thematic analysis were adopted from Braun and Clarke's model (Braun & Clarke 2006, as cited in Howitt & Cramer 2011:336), and direct quotes were used as meaning units.

1.8.3 Validity and reliability for quantitative data

The validity and reliability of the questionnaire were assessed in different ways.

1.8.3.1 Validity

Any instrument is said to be valid when it measures what it is expected to measure (Pandey & Pandey 2015:21). As there are different types of validity, various mechanisms were designed to achieve validity. Internal, face, content, construct and external validity were ensured in this study.

Internal validity refers to the extent to which the effect of the dependent variable is the result of the independent variable and not some other extraneous variables (Schneider, Whitehead, LoBiondo-Wood & Haber 2016:402). In order to ensure internal validity, the study participants were randomly selected from the well-defined study population (sampling frame). *Face validity* refers to validity that ensures the content reflects the concept in question (Bryman 2012:171). It is "the degree to which a measure appears to be related to a specific construct" (Taherdoost 2016:29). This is ensured by giving the questionnaire to experts in the related field to read and give their input. According to Strauss, Taylor, Gu, Kuyken, Baer, Jones and Cavanagh (2016:19), content validity refers to the extent to which an instrument provides adequate coverage of the topic under study. *Content validity* was guaranteed by including questions to address the core issues in relation to the objectives and research questions of the study. Heale and Twycross (2015:66) argue that a measure is said to possess construct validity if inferences are drawn about the test scores related to the concept being studied. *Construct validity* was ensured by conducting a comprehensive literature review to conceptually define the major constructs of the study. *External validity* is the extent to which findings can be generalised to populations or other settings (Schneider, Whitehead, LoBiondo-Wood & Haber 2016:402)). The external validity was assured by using a standard data collection tool that had been pre-tested. The sample size calculation also considered a non-response rate and design effect to increase the representativeness of the participants of the study to the population.

Reliability refers to consistency throughout a series of measurements (Pandey & Pandey 2015:21). The reliability of the tool was assured by pre-testing the data

collection tool and collecting data from 5% of the respondents not included in the primary sample. Cronbach alpha coefficient was calculated to assess the reliability. A biostatistician was also consulted in these processes.

1.8.3.2 Trustworthiness

In order to maintain scientific rigour, credibility, dependability, confirmability, and transferability were considered based on Lincoln and Guba's (1985) criteria as cited by Polit and Beck (2012:175).

Credibility refers to the accurate and truthful depiction of a lived experience of study participants (Cypress 2017:257). Credibility is a way of establishing confidence that the result of a study are believable (Forero, Nahidi, De Costa, Mohsin, Fitzgerald,Gibson, McCarthy & Aboagye-Sarfo 2018:3).

In order to maintain the *credibility* of the study, the research approach was clearly described and direct quotations were used.. Probes were also used to collect in-depth data so that the result was well described. Triangulation of data sources and methods were also considered to improve credibility. *Dependability* refers to "the stability of findings over time" (Lincoln & Guba 1985, as cited in Korstjens & Moser 2018:121). Dependability was facilitated by making sure that the research process was logical, traceable, thickly described and documented. Each step of the research method (sampling, data collection, analysis) and how it was implemented in the field was fully explained. *Confirmability* was achieved through correctly documenting all the procedures of data collection and analysis for the audit trail and possible replication of the study by other like-minded researchers. Ghafouri and Ofoghi (2016:1917) define 'confirmability' as the degree to which others can confirm the results. *Transferability* refers to the degree to which findings of the qualitative research can be applied in a different context to which the data were collected (Bryman 2012:49; Forero et al 2018:3). Transferability in this study was achieved through a thick description of the context in which the study was conducted, and the research process followed.

1.9 ETHICAL CONSIDERATIONS

There are commonly used ethical principles that have to be followed by researchers. These include respect for the rights of the study institutions, the rights of participants, and ensuring scientific integrity (Australian Council for International Development (ACFID) 2017:4-5; Republic of South Africa, Department of Health 2015:16). The rights of the study area were protected by obtaining ethical clearance from the Research Ethics Committee of the Higher Degrees Committee of the Department of Health Studies of the University of South Africa (Annexure A). Permission was also obtained from Somali regional and North Jigjiga District health bureaus (Annexure C). The rights of the participants were protected by ensuring that informed written/verbal consent was obtained prior to data collection (Annexure D). Confidentiality, anonymity, the respect and dignity of the person, beneficence and justice were also ensured. The right to withdraw from the study at any stage without victimisation was respected. The study respondents were informed about the purpose of the study and the importance of their participation in the research.

1.10 SIGNIFICANCE OF THE STUDY

The findings of this study will be useful to the regional, zone and district-level health bureau professionals who have been engaged in FP service delivery. They find it essential to be aware of context-specific factors that prevent agro-pastoral women from using modern contraception. It also pinpoints the strengths and limitations of the family service delivery from the women's and FP service providers' perspectives. Since agro-pastoral areas are so vulnerable to various situations, policymakers will find this research necessary in designing or modifying current policies and strategies that enhance the utilisation of modern contraception among agro-pastoralist women of reproductive age. Moreover, the strategies to be developed could guide FP service providers in giving appropriate services to agro-pastoral women and men.

1.11 STRUCTURE OF THE DISSERTATION

The thesis is structured into the following chapters:

Table 1.1 Structure of the thesis

Chapter	Title	Content description
1	Orientation of the study	Introduction of the study, stages of the study, overview of the research problem, research purpose, research question and hypothesis. The study objectives, significance of the study, definition of terms, theoretical foundation, research design and methods, and validity and reliability/trustworthiness are briefly introduced.
2	Literature review	A thorough discussion of literature consulted in relation to the study's topic is presented.
3	Research design and methodology	The overall design of the research, the research method used in order to achieve the objectives of the research, ways of ensuring validity and reliability/trustworthiness, and ethical considerations are discussed.
4	Analysis, presentation and description of the research findings	An analysis, presentation, interpretation and discussion of the research results is offered in this chapter.
5	Strategies to reduce unmet need for modern contraception	Strategies that can be used to reduce/mitigate the unmet need for modern contraception are presented.
6	Discussion, conclusions and recommendations	The conclusions and recommendations based on key findings of the study are considered.

1.12 CONCLUSION

This chapter has presented an overall picture of the study. It discussed the steps that were followed in the study and offered background information about the research problem and the aims behind the study. Operational and conceptual definitions of the main concepts were defined and the theoretical foundations, HBM and PHC model were also discussed. The theoretical assumptions of the study were also part of the chapter. The research designs and methods that were employed in the study were briefly discussed, along with the population, sampling techniques, data collection and methods of data analysis. The chapter also introduced the various ways of ensuring validity, reliability and trustworthiness of the collected data and issues related to ethical considerations.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, the researcher presents the literature review on women's unmet need for modern contraception or FP methods. This unmet need for FP refers to a gap between women's reproductive intentions and their contraceptive behaviour (Machiyama et al (2017:1); United Nations Population Fund [UNFPA] 2012). The unmet need for contraception is higher in sub-Saharan Africa than in other regions (Bongaarts, Cleland, Townsend, Bertrand & Gupta 2012:14); it accounts for 21% of the global burden of unmet need for modern contraception (Wang & Cao 2019:1). Lith, Yahner and Bakamjian (2013:101) indicate that about eight million women in 18 sub-Saharan African countries have an unmet need for contraception to limit births. The prevalence of this unmet need for FP is also higher in rural areas than urban ones (Tadele, Abebaw & Ali 2019:4). This chapter defines and discusses the approach to the literature review employed for this study. An overview of FP is then provided, followed by a review of modern contraceptive methods and unmet needs for modern contraception.

2.1.1 Literature search methods

Nayak and Singh (2015:39) define a 'literature search' as a "systematic and thorough search of all types of published literature in order to identify a breadth of good quality references relevant to a specific topic". The literature essential for this study were reviewed from different databases. Creswell (2014:3) recommends that the literature review is started with the identification of keywords. Accordingly, 'family planning', 'modern contraception', 'unmet need', 'strategies', 'factors and barriers' were the keywords used to search the articles in relation to the study's topic. The main databases that were consulted included PubMed, BMC, EBSCO Host, Science Direct, Scopus, Emer Lade and Web of Science. The journals from which the articles were taken were peer-reviewed and indexed.

A topical approach was used to present various aspects which are significant for discussion as listed in the keywords in the previous paragraph. The unmet need for modern contraception and applicable theoretical models/frameworks further formed the basis for the study.

2.2 AN OVERVIEW ON FAMILY PLANNING

FP has attracted significant attention among those involved in reproductive health; currently more so than at any other time because of the need to control fertility and issues related to maternal and child health, especially in developing countries (Heila, Gaalemaa & Herrmann 2012:1). Rapid population growth has an influence on the wellbeing and quality of life of the people and the environment. Mberu and Ezeh (2017:3843) claim rapid population growth and high fertility in developing countries is a peril that jeopardises the life of individuals in particular, and the society in general. High maternal and infant mortality and morbidity have been indicated as some of the aftereffects of rapid population growth (Sitruk-War, Nath & Mishell 2013:320).

In countries where rapid population growth prevails, the issue of FP cannot be overlooked (WHO 2018a). It is a way of allowing women to make decisions on reproductive issues and plan how many children they wish to have (Staveteig 2017:2). FP is also considered as a key part of development strategies in any society (Bongaarts 2014:247), and access to FP is a human right (UNFPA 2016). In addition to these, access to reproductive health services, including FP, can be taken as a way of women achieving economic empowerment (Finlay & Lee 2018:304).

One of the changes that have been observed in the 20th century is the adoption of FP (Tekelab et al 2015:2). However, letting women access FP has been one of the challenges faced by developing countries for various reasons. As Uddin, Pulok and Sabah (2016:18) put it, meeting women's contraceptive needs to improve maternal health has been challenging for both scholars and clinicians.

2.2.1 Historical trends, movements and events of family planning

The history of FP goes back many decades. People had various beliefs and practices to regulate fertility before the emergence of FP. There were times when issues related to

fertility were directed to the gods and various other deities in different cultural groups (Robertson 1990:16).

Scholars discovered various reasons and events that paved the way for the evolution of FP. According to Robertson (1990:15), regulating the number of children, the need for a corresponding population with the available resources, and the need to provide necessary facilities were among the reasons for the emergence of FP. It has also been noted that FP emerged due to the agreement of various foundations, international development agencies and governments of developing nations on the consequences of rapid population growth and high fertility rates (Miller & Babiarz 2016:7; Seltze 2002:xii).

Several movements and events took place in the history of FP. Westeneng and Rolink (2018:13) indicate that two different thoughts emerged from the FP movements that happened in the mid-1960s to the mid-1990s, namely the birth control movement by Margaret Sanger, Marie Stopes and other pioneers, and the population control movement which had its origin by Thomas Malthus. The major concern of the birth control movement was to raise awareness of women's rights to avoid unintended pregnancy which is essential in the efforts made in women's empowerment (World Bank 2007:1). However, the population control movement was concerned with the imbalance between the rapidly growing population and agricultural production (Ghafur 2017:43).

The other significant events in FP included conferences and summits that took place at different times. One of the conferences is the International Conference on Population and Development (ICPD) which took place in Cairo in 1994. It was one of the events that moved the momentum of FP one step ahead. Cates and Maggwa (2014:s16) and Mmusi-Phetoe (2012:80) argue that the ICPD shifted birth control from the field of population development to PHC, following the concern that the design of policies for reproductive health care was shaped by a concern for quality care and not the demographic objectives. These concerns were raised by women's health movements who argued that if fertility reduction is the primary goal in FP units, quality care tends to be neglected and the risks of reproductive morbidity and mortality increase (Garcia-Moreno & Claro 1994:47 in Mmusi-Phetoe 2012:80). The panel on reproductive health in developing countries at the ICPD concluded that a reproductive health policy should aim to achieve, as one of its goals, that every pregnancy should be intended (UNFPA 2004:50).

The International Family Planning Conference that was held in Uganda in 2009 was another remarkable event in the history of FP. Several issues that are relevant to the development of FP were raised. Mbizvo and Burke (2016:1) argue that at the Uganda conference, the need for further research to guide contraceptive method mix, improve quality of care, expand contraceptive access, and the development of new methods to meet the evolving needs of users, was determined.

In 2012, there was a London Summit in which countries from all corners of the globe shared their comments to further improve FP in their respective nations (Rimon & Tsui 2018:626). It was a forum where donors, researchers and development organisations gathered together to address reproductive health needs (New, Cahill, Stover, Gupta & Alkema 2017:e350). According to Jain, Obare, RamaRao and Askew (2013:133), the London Summit on FP set the goal of providing modern contraceptive methods to 120 million more women and girls with unmet needs in 69 of the poorest countries by 2020. Ethiopia was one of the target countries of the 2020 summit. It was also a forum that gave attention to the need for research concerning barriers to contraception and factors associated with the discontinuation of contraceptive methods (Mbizvo & Burke 2016:1). In line with this, it was proposed that in order to achieve the goal of reaching 120 million more women and girls by 2020, innovative solutions were needed to mitigate the barriers to modern contraception (Nanda, Callahan & Dorflinger 2015:729). The FP 2020 summit was also in favour of a human rights-based approach which enables any person to have the power to decide on the number and timing of their children and be aware of all the contraceptive methods available to make their own choice (Stover & Sonneveldt 2017:87). The summit also entertained various concerns from the participants. One of the issues raised was whether it would be possible to address the unmet need for contraception by only increasing the accessibility of contraceptive methods (Jain et al 2013:133). In the summit, participant countries made different commitments such as increasing the budget for FP and identifying barriers to accessing FP services (Dockalova, Lau, Barclay & Marshall 2016:2).

The issue of FP was also the focus of the millennium development goals (MDGs) and sustainable development goals (SDGs). Goal 5 of the MDG was concerned with improving maternal health. The contraceptive prevalence rate and the proportion of the demand for FP that is unmet were two of the indicators to measure the progress of the

target in relation to maternal health (Gaffey, Das & Bhutta 2015:285). Due to its need, FP has continued to be among the main agenda in the SDGs to be achieved by 2030. Among the 17 goals, two of them (Goal 3: Ensure healthy lives and promote wellbeing for all at all ages; Goal 5: Achieve gender equality and empower all women and girls) have been about issues related to FP. One of the targets in Goal 3, is to "ensure universal access to sexual and reproductive health care services, including FP, information and education, and the integration of reproductive health into national strategies and programmes" (Dockalova et al 2016:3). The FP indicator for this target is the proportion of women of reproductive age (15-49 years) who have their need for FP satisfied with modern contraceptive methods (Dockalova et al 2016:3).

Generally, FP has shown progress in addressing the needs of reproductive-aged women worldwide (Cates & Maggwa 2014:S14). However, the pace has not been as planned in the 2012 London Summit in terms of the number of FP users. As indicated in the summit, it was expected that 120 million more women and girls had to get access to modern contraceptive methods by 2020. The current users should therefore have increased by 49 million to meet the global objective. However, it is estimated that only about 34 million more women were added in 2017 (Stover & Sonneveldt 2017:84). This shows the importance of exerting significant effort to let all reproductive-aged women access modern contraception.

2.2.2 Family planning in Ethiopia

It has been about five decades since the start of modern FP in Ethiopia (Samuel, Uliso, Olle, Dambe, Nigatu & Sorato 2017:37), which emerged from the FGAE (Olson & Piller 2013:447). Since its beginning, achievements have been observed in the country in terms of expanding FP services so that the number of people who have been using FP services increase (CSA [Ethiopia] 2014:38). Efforts have also been made in order to let women access the contraceptive method they prefer (UNPFA 2012:6). A reduction of the fertility rate (CSA [Ethiopia] & ICF 2017:78) and an increase in the prevalence of modern methods of contraception can be taken as examples to show the progress FP has made as exemplified in some regions (CSA [Ethiopia] & ICF 2016:103). The total fertility rate was 5.9 children per woman (CSA & ORC Macro 2001:40), 5.4 (CSA & ORC Macro 2006:50), 4.8 (CSA [Ethiopia] & ICF 2012:81) and 4.6 (CSA [Ethiopia] & ICF 2017:78) in 2000, 2005, 2011 and 2016 respectively. The prevalence of modern

methods of contraception has also increased from 6% in 2000 to 35% in 2016 (CSA [Ethiopia] & ICF 2017:103).

Several activities can be mentioned that show the focus of the Ethiopian government in terms of FP. Training health extension agents can be taken as one of the measures employed to increase FP services in the country. Therefore, more than 38,000 health extension workers have been trained and deployed all over the country, including two health extension workers in each *kebel*e, the smallest administrative unit (MoH [Ethiopia] 2015:12). The focus on this phenomenon has also been seen in the various documents produced by the government. The National Adolescent and Youth Reproductive Health Strategy (2007-2015), the Family Planning Guideline (2011), Health Sector Development Plan (2015) and Costed Implementation Plan for Family Planning in Ethiopia (2015), could all be cited.

The National Adolescent and Youth Reproductive Health Strategy was developed from 2007 to 2015, with the vision of enhancing reproductive health and wellbeing among young people in Ethiopia (MoH [Ethiopia] [s.a.]:xi). The Family Planning Guideline was prepared in 2011 to serve as a guide to all cadres of health care providers to set standards for FP programmes (MoH [Ethiopia] 2011:22). Service standardisation of various components of FP services was done at all levels in order to expand and improve the quality of FP services offered (MoH [Ethiopia] 2011:22). Moreover, the Costed Implementation Plan for Family Planning in Ethiopia, 2015/16-2020 (MoH [Ethiopia] 2016) was drafted to improve the health and wellbeing of Ethiopians in general, and scale up FP in particular. The plan also emphasised the commitment of Ethiopia to increase the modern contraceptive prevalence rate to 55% among married women by 2020, and reduce the total fertility rate to 3.0 children per woman (MoH [Ethiopia] 2016:1). The Health Sector Transformation Plan (HSTP) 2015/16-2019/20 that was prepared in October 2015 was the other initiative that took FP as one of its components (MoH [Ethiopia] 2016:28). According to the document, effort has been and will be exerted to improve the country's FP service. It is indicated that by the end of the plan period (2020), the unmet need for FP will be reduced to 10%, in addition to the goal of increasing modern contraceptive prevalence and reducing fertility (MoH [Ethiopia] 2015:100).

Despite the fact that the Government of Ethiopia has made such efforts to expand FP to ensure that most women and men of reproductive age benefit from the services, several issues, such as clients' awareness of modern contraceptive methods and lack of training of health extension workers have been lagging (FHI 360:2012). The progress towards increasing the prevalence of modern contraception has not been as promised by the MoH (Ethiopia). At the summit, it was suggested to increase the contraceptive prevalence rate to 69% by 2015 and reduce the total fertility rate (TFR) to 4 children per woman by 2015 (Government of Ethiopia 2012). However, these objectives could not be reached to that extent. According to the CSA [Ethiopia] and ICF (2017:103), the modern contraceptive prevalence was 35% in 2016, and the TFR was 4.6 in 2016 (CSA [Ethiopia] & ICF 2017:77). Therefore, the unmet need for modern contraception remained high as 22% of married women were experiencing an unmet need for modern contraception (CSA [Ethiopia] & ICF 2017:109).

2.3 MODERN CONTRACEPTION METHODS

Hubacher and Trussell (2015:420) define 'modern contraception' as "technological advances designed to overcome biology". They further note that modern contraception is a contraceptive method that enables the partners to have sexual intercourse whenever they need or desire (Hubacher & Trussell 2015:420). Scholars of FP research have proposed various classifications of contraceptive methods which are categorised as modern and traditional. As suggested by Njotang, Yakum, Ajong, Essi, Akoh, Mesumbe, Ako and Mbu (2017:3), modern contraceptive methods include male and female condoms, IUDs, pills, subcutaneous implants, injectable contraceptives, diaphragms, and cervical caps. Narzary, Madhusudana and Susuman (2017:782) classify oral pills, IUDs, injections, diaphragms, condoms and sterilisation (male and female) as modern methods of contraception, whereas periodic abstinence, withdrawal and other folkloric methods are traditional ones. According to Hubacher and Trussell (2015:421), sterilisation (male and female), IUDs and subdermal implants, oral contraceptives, condoms (male and female), injectables, emergency contraceptive pills, patches, diaphragms and cervical caps, spermicidal agents (gels, foams, creams and suppositories) and vaginal rings and sponges are considered as modern methods of contraception. However, there remain inconsistencies in classifying methods as 'modern' (Festin, Kiarie, Solo, Spieler, Malarcher, Look & Temmerman 2016:289-290). From the above explanations, the variation of the classification has mainly been seen in

the LAM and fertility awareness methods such as Standard Days Method (SDM) and the two-day method.

Cahill, Sonneveldt, Stover, Weinberger, Williamson, Wei, Brown and Alkema (2017:2) categorise the SDM and LAM as modern methods of contraception. The WHO also recently classified the SDM and LAM as modern methods of contraception (WHO 2017). Malarcher, Spieler, Fabic, Jordan, Starbird and Kenon (2016:13), referring to the United States Agency for International Development (USAID), argue about the LAM, SDM and the two-day method as modern contraception.

Conversely, Hubacher and Trussell (2015:421) classify the SDM and LAM as 'non-modern' or traditional methods. To these authors, modern contraception has to be used any time whenever the couples choose to have intercourse without any concern for the possible occurrence of unintended pregnancy. Moreover, in order to use LAM methods, the women must have given birth, thus it does not apply to those who have not yet delivered a baby (Hubacher & Trussell 2015:421). The UNFPA (2016:20) has also taken LAM and calendar methods as traditional methods of contraception. An argument by Austad, Chary, Colom, Barillas, Luna, Menjı´var, Metz, Petrocy, Ruch and Rohloffa (2016:343) contradicts Malarcher et al (2016) as they do not consider LAM, SDM, and the two-day method as modern contraception. They claim that in a society where 10-50% of women do not have the power to refuse sex with their partners, fertility awareness methods cannot be considered as 'modern' (Austad et al 2016:343). Moreover, the LAM could only be applied for a short period (six months of exclusive breastfeeding), which does not help women space births to the recommended three years (Austad et al 2016:343). According to Knerr (2012:238), traditional methods are those non-pharmaceutical or non-barrier methods of pregnancy prevention that includes the LAM.

2.3.1 Modern contraception prevalence

Contraceptive prevalence is regarded as one of the indicators of contraceptive behaviours among women worldwide (Bongaarts & Hardee 2017:41). Globally, the proportion of women who are taking modern contraception has been increasing over time, from 54% in 1990 to 57.4% in 2015 (WHO 2018a). In 2015, 57% of married or cohabiting women of reproductive age used modern methods of FP worldwide (UN

2015a:1). As of 2017, of 1.6 billion women of reproductive age who lived in developing regions, about three-quarters (671 million) were using modern contraception (Darroch et al 2017). Despite the increasing number of women who are using modern contraception, Darroch et al (2017) argue that of all women of reproductive age, 214 million in developing regions want to avoid pregnancy but are still not using such methods.

The prevalence of modern contraception also varies across nations. A study in India conducted by New et al (2017:e351) showed that about 52% of married women who were in the reproductive age were using modern contraceptive methods in 2015. The prevalence of modern contraception in Sierra Leone in 2013 was 15.6% (Keen, Begum, Friedman & James 2017:1) and 58.9% were using modern contraceptive methods in Cameroon (Njotang et al 2017:4). In 2016, use of modern contraception among married women in Malawi was 58% (National Statistical Office [NSO] [Malawi] & ICF International 2016:94). One-fourth (25.2%) of women in urban Nigeria were also using modern contraception in 2011 (Okigbo et al 2017:77).

According to the 2016 Demographic Health Survey of Ethiopia, the prevalence of modern contraception was 35% (CSA [Ethiopia] & ICF 2017:104). This statistic shows the increase in women of reproductive age who are using modern contraception in the last two decades. The modern contraceptive prevalence rate in Ethiopia was 6%, 14% and 27% in 2000, 2001 and 2011, respectively (CSA [Ethiopia] & ICF 2012:97).

The prevalence of modern contraception also shows variation among different regions of Ethiopia. The highest and lowest proportion of women who use modern contraception in 2016 was found in Addis Ababa (50%) and the Somali region (1%), respectively (CSA [Ethiopia] & ICF 2017:105). A study conducted in the North Shoa Zone, Amhara Region (Ethiopia) indicated that approximately 47% of respondents in the study were using modern contraceptive methods (Mohammed, Woldeyohannes, Feleke & Megabiaw 2014:5). In Farta District, South Gondar Zone (Ethiopia), the prevalence of modern contraceptive methods was 66.2% (Kassa, Degu & Birhanu 2014:510). The overall utilisation of modern contraception in Western Ethiopia was found to be 71.9% (Tekelab et al 2015:5). Modern contraceptive methods in the rural Dembia District, Northwest Ethiopia were used by 31.7% of women (Debebe, Limenih & Biadgo 2017:369). Modern contraception utilisation is low among pastoral and agro-pastoral women in Ethiopia. It

has been revealed that, among the agro-pastoral communities, the prevalence of contraception was 2.0%, 1.0%, 19.9% and 19.0% in rural Afar, Somali, Benishangul-Gumuz and Gambela regions, respectively (Bogale & Mekonnen 2017:58).

Among all the modern contraceptive methods, female sterilisation and the IUD are the most common methods used by married women worldwide, whereas most women in Eastern Africa and Southern Africa use injectables (UN 2015a:24). Nanda et al (2015:730) claim that more than one-third of women in sub-Saharan Africa use injectable contraceptives. The most commonly used method among married women in Malawi was also the injectable (NSO & ICF International 2017:94).

Injectables is also a modern contraceptive method used by the majority of women in Ethiopia. In 2016, among the married women in Ethiopia, 23% used injectables, while implants, IUDs and the pill constituted 8%, 2% and 2%, respectively (CSA [Ethiopia] & ICF 2016:16). The high prevalence of injectable (62.9%) contraceptive use has also been indicated in research conducted in North Shoa Zone, Ethiopia (Mohammed et al 2014:5), and it was noted that about 60% of women in Western Ethiopia were using injectable contraceptives (Tekelab et al 2015:6). Among women pastoralists who used modern contraception in Afar, about 90% of them were using injectables (Alemayehu et al 2016:4). Similarly, the favourite modern contraceptive method practised among married women in Butajira District was the injectable (Depo-Provera) (42.2%), followed by pills (24.7%) (Mekonnen & Worku 2011:3).

2.3.2 Importance of modern contraception

The importance of modern contraception has been given much emphasis as it benefits women and children in particular, and the family and society in general (Beson et al 2018:2; Bongaarts et al 2102:46; WHO 2018a). Controlling fertility through effective methods of contraception is a vital strategy to have planned pregnancies (Sitruk-Ware et al 2013:320). It has further been noted that if all women who want to avoid pregnancy used modern contraception, unintended pregnancies, maternal deaths and the burden of disability due to pregnancy would be reduced (Singh et al 2014:4). Mohsen et al (2016:54) also claim that birth spacing is an important measure to reduce maternal and child mortality.

Reliable contraceptive methods are needed in developing countries where women have been experiencing pregnancies beyond their need and they could not space births based on their desire (Sedgh et al 2014:301). Also, according to Darroch et al (2017), modern contraceptive use prevents an estimated 307 million unintended pregnancies annually among all women of reproductive age in developing regions. Of the estimated 206 million pregnancies in 2017 in developing regions, 43% were unintended (Darroch et al 2017), and unintended pregnancy has become a severe public health concern worldwide (Bishwajit, Tang, Yaya & Feng 2017:1).

Africa is a continent with a high prevalence of unintended pregnancy; 89 per 1,000 (Singh, Remez, Sedgh, Kwok & Onda 2018:5). A study conducted in Kenya indicated that among the respondents, about 24% of the women in the study had experienced an unintended pregnancy (Ikamari, Izugbara & Ochako 2013:3). Two-thirds (64.33%) of pregnancies were unintended in KwaZulu-Natal, South Africa (Haffejee, O'Connor, Govender, Reddy, Sibiya, Ghuman, Ngxongo & Borg 2017:3). And in rural Ghana, 70% of pregnancies were also unintended (mistimed 39%, unwanted 31%) (Eliason, Baiden, Yankey & Awusabo-Asare 2014:3).

The prevalence of unintended pregnancy, as various studies such as those by Fite, Mohammedamin and Abebe (2018:4) and Melese, Gebrie, Badi and Mersha (2016:3) revealed, has also been high in different parts of Ethiopia. As to a study in Southern Ethiopia, about 36.9% of women had unintended pregnancies (Feyisso, Girma, Yimam & Hailu 2017:3). The prevalence of unplanned pregnancy among antenatal care-attending pregnant women in Hawassa, Ethiopia was 33.7% (Mulat et al 2017:3). About 37% of pregnancies were unplanned in west Wollega, Oromia region, Ethiopia (Teshome, Hailu & Teklehaymanot 2014:95). In an institutional study conducted in Gelemso General Hospital of Oromiya Region (Ethiopia) among women who were attending antenatal care, 27.1% of the pregnancies were unintended (Mohammed, Musa & Amano 2016:3).

The number of women who die due to pregnancy-related causes is also high in developing countries. Despite the global average of maternal deaths per 100,000 live births in 2015 being 216, in sub-Saharan Africa, 546 women per 100,000 live births died in the same year due to pregnancy-related causes (Roos & Xylander 2016:31). Frequently, unintended pregnancies end up with induced abortions, and it is a

significant contributor of maternal death in developing countries (Abiodun, Sotunsa, Jagun, Faturoti, Ani, John, Taiwo & Taiwo 2015:756). In 2014, the estimated number of induced abortions in Ethiopia was 620,300 (Moore, Gebrehiwot, Fetters, Wado, Bankole, Singh, Gebreselassie & Getachew 2016:117). It is further noted that 13% of unintended pregnancies ended in induced abortion in 2014 in Ethiopia (Moore et al 2016:117). Furthermore, the average lifetime risk of women dying due to causes related to pregnancy in developing countries is 1 in 150 pregnancies, which is significantly higher than 1 in 4900 in the developed countries (Roos & Xylander 2016:31). These deaths seemingly occur mainly due to a lack of reliable contraceptive methods.

2.4 UNMET NEED FOR MODERN CONTRACEPTION

The development of the concept of unmet need is rooted in the Knowledge, Attitude, and Practice (KAP) surveys of the 1960s (Staveteig 2017:3). An unmet need for modern contraception has been defined in different ways at different times. As a result, there were inconsistencies in calculating women's unmet need for modern contraception among various countries. Bradley et al (2012:11) define an 'unmet need for family planning' as women who (1) are not pregnant and not postpartum amenorrhoeic, are considered fecund and want to postpone their next birth for two or more years, or stop childbearing altogether but are not using a contraceptive method; or (2) have a mistimed or unwanted current pregnancy; or (3) are postpartum amenorrhoeic and their last birth in the last two years was mistimed or unwanted. Further, the unmet need for contraception has been classified and clarified by Bradley et al (2012:12-13) as the unmet need for birth spacing and birth limiting as follows:

Women are considered to have an unmet need for birth spacing if they are:

- at risk of becoming pregnant, not using contraception, and either do not want to become pregnant within the next two years or are unsure if or when they want to become pregnant
- pregnant with a mistimed pregnancy
- postpartum amenorrhoeic for up to two years following a mistimed birth and not using contraception

Women are considered to have an unmet need for birth limiting if they are:

- at risk of becoming pregnant, not using contraception, and want no (more) children
- pregnant with an unwanted pregnancy
- postpartum amenorrhoeic for up to two years following an unwanted birth and not using contraception

In simple terms, an unmet need for modern contraception refers to the proportion of women who are fecund and want to stop or delay childbearing, but are not using modern methods of contraception (Bongaarts & Hardee 2017:42). Uddin et al (2016:19) define the ‘unmet need for modern contraception’ as “the discrepancy between a woman's stated desire to limit or space childbearing and her actual use of contraceptives”. Figure 2.1 schematically presents the definition of married women’s unmet need for contraception.

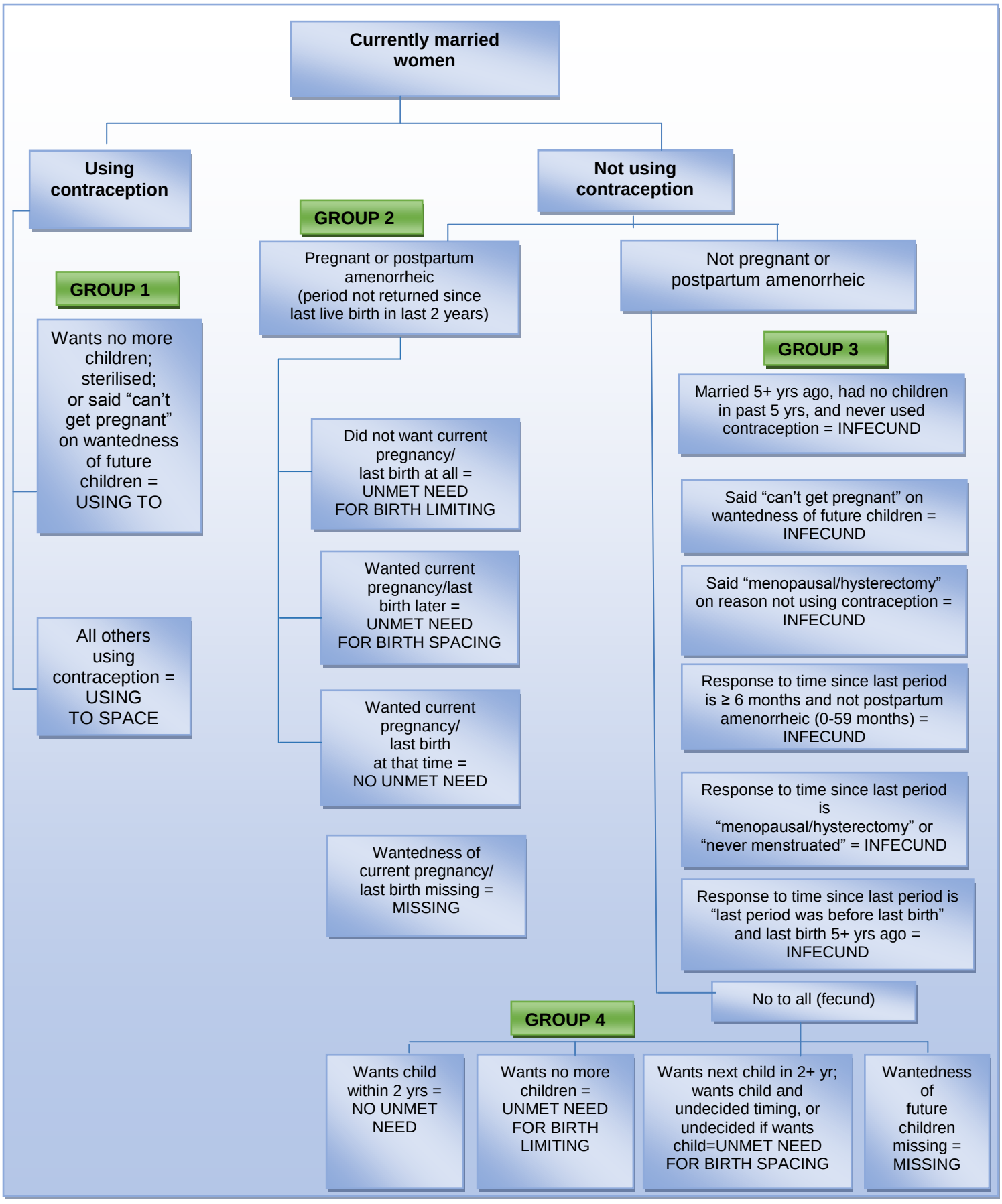

Figure 2.1 Definition of unmet need, currently married women

(Bradley et al 2012:11)

- **Group 1**

Women who belong to group 1 are those who use modern contraception either to limit or space birth. They are considered as women whose needs are met.

- **Group 2**

Group 2 consists of women who are not using any kind of contraception. They are either pregnant or postpartum amenorrhoeic. Pregnant women who do not want their current pregnancy or postpartum amenorrhoeic women whose last birth was not intended are referred to as women whose need for birth limiting is unmet (unmet for birth limiting). If the pregnant woman needs to delay the pregnancy or if the postpartum amenorrhoeic women need to postpone the last birth, it is referred to as an unmet need for birth spacing.

- **Group 3**

This group comprises women who are neither pregnant nor postpartum amenorrhoeic. It includes both fecund and infecund women. Infecund women are not included in the study as they do not give birth.

- **Group 4**

This group consists of women who can give birth (fecund) but do not use contraceptive methods. Women who belong to this group and who do not want more children are termed as those with an unmet need for birth limiting. If a woman wants to wait at least two years before giving birth or is undecided when to give birth, it is referred to as an unmet need for birth spacing. If a woman wants to have a child within two years, there is no unmet need though she does not use any contraception.

Unmet needs have been an important concept in FP and population policy research for the last two decades (Bradley & Casterline 2014:123). The concept of 'unmet need' is known to have a significant place in FP programmes, and it is often used to measure the demand for contraception (Staveteig 2017:2). A reduction of unmet need is among the goals of reproductive health policies and programmes (Machiyama, Casterline,

Mumah, Huda, Obare, Odwe, Kabiru, Yeasmin & Cleland 2017:2). If all unmet needs for modern contraceptive methods were satisfied, maternal mortality would drop by almost one-third from current levels, and unplanned births and unsafe abortions would decline by 89-92% (Sundaram, Vlassoff, Bankole, Remez & Gebrehiwot 2010:1). In countries where rapid population growth prevails, reducing this unmet need can serve as a way to decrease fertility rates (Sedgh, Ashford & Hussain 2016:9) and it is useful to plan for intervention and advocacy (Festin et al 2016:290).

In spite of the fact that reducing this unmet need is recognised as one of the strategies to avoid maternal mortality and morbidity and control fertility, the prevalence of unmet needs is still high in developing countries (Alkema, Kantorova, Menozzi & Biddlecom 2013:9). Singh et al (2014:10-11) indicate that the unmet need for modern contraception is a phenomenon that exists worldwide, but it is higher in sub-Saharan Africa and Southern Asian countries. In 2015, 12% of married or in-union women were estimated to have had an unmet need for modern contraception worldwide (UN 2015a:7). As to a study in Nusa Tenggara Barat (Indonesia), the unmet need for contraception was 17.1% (Ayuningtyas, Oktaviana & Misnaniarti 2015:244). Among women in India, Pakistan, Zambia, Kenya and Guatemala who do not want to get pregnant, 50% had an unmet need for FP services (Pasha, Goudar, Patel, Garces, Esamai, Chomba, Moore, Kodkany, Saleem, Derman, Liechty, Hibberd, Hambidge, Krebs, Carlo, McClure, Koso-Thomas & Goldenberg 2015:3).

- **African context**

Studies conducted by Bongaarts and Casterline (2012:160) and Sedgh and Hussain (2014:155) reveal that among all continents, the unmet need for contraception was significant in Africa. FP studies in Africa witness that the prevalence of unmet needs in about two-thirds of countries in Africa is more than 25% (Sedgh & Hussain 2014:155). Among married women in rural areas of Burkina Faso, nearly 41% were unable to have their contraceptive needs met (Adebowale & Palamuleni 2014:505). In Sierra Leone, 25% of married women had an unmet need for contraception (Keen et al 2017:2). Moreover, countries like Benin (36.1%), Burundi (33.1%), Cameroon (33.2%) Congo Brazzaville (37.9%), Ghana (34%), Democratic Republic of the Congo (39.9%), and Haiti (35·5%) are some of the African countries with a high unmet need for contraception (Cahill et al 2017:4). Thus, it can be concluded that the need for modern

contraception is not adequately accessed by many people in the world, particularly among those with lower economic status (Townsend 2010 as cited in Creanga, Gillespie, Karklinsa & Tsuia 2011:263).

The level of unmet need for modern contraception in Ethiopia also shows the need for a great effort to be made to let reproductive-aged women meet their needs. According to Cahill et al (2017:4), the unmet need for modern contraception in Ethiopia is 23.7%. Also, although there are variations in the different parts of Ethiopia, the unmet need for modern contraception is generally high. In a study conducted in Dessie town, Ethiopia, among women in the extended postpartum period, the prevalence of the unmet need for modern contraceptives was 44% (Tegegn, Arefaynie & Tiruye 2017:5). The total unmet need of long-acting and permanent FP methods (LAPMs) in health facilities in Shashemene Town was found to be 33.3%, of which 21.6% required birth spacing and 11.7% wanted birth limiting (Mota, Reddy & Getachew 2015:5). The level of unmet need for contraception in Awi Zone, Amhara regional state was 17.4% (Genet et al 2015:3).

In the Somali region (Ethiopia), in spite of a reduction in women's unmet need for modern contraception in the last decade, women's met needs have decreased. Figure 2.2 presents the trends of unmet needs, met needs, total demand and demand satisfied for modern contraception in the Somali region.

As shown, the demand for modern contraception among more than three-quarters of women in the region has not been satisfied since 2000. Moreover, the demand satisfied has declined over the last ten years, from 21.3% in 2005 to 9.6% in 2016. The proportion of women with met needs for modern contraception has also declined in recent years (from 4.3% in 2011 to 1.5% in 2016). Moreover, the demographic health surveys conducted in Ethiopia since 2000 showed that the demand satisfied with modern methods of contraception in the Somali region was the lowest of all the regions in the country (CSA [Ethiopia] & ICF 2012:101; CSA [Ethiopia] & ICF 2017:117; CSA & ORC Macro 2001:91; CSA & ORC Macro 2006:96).

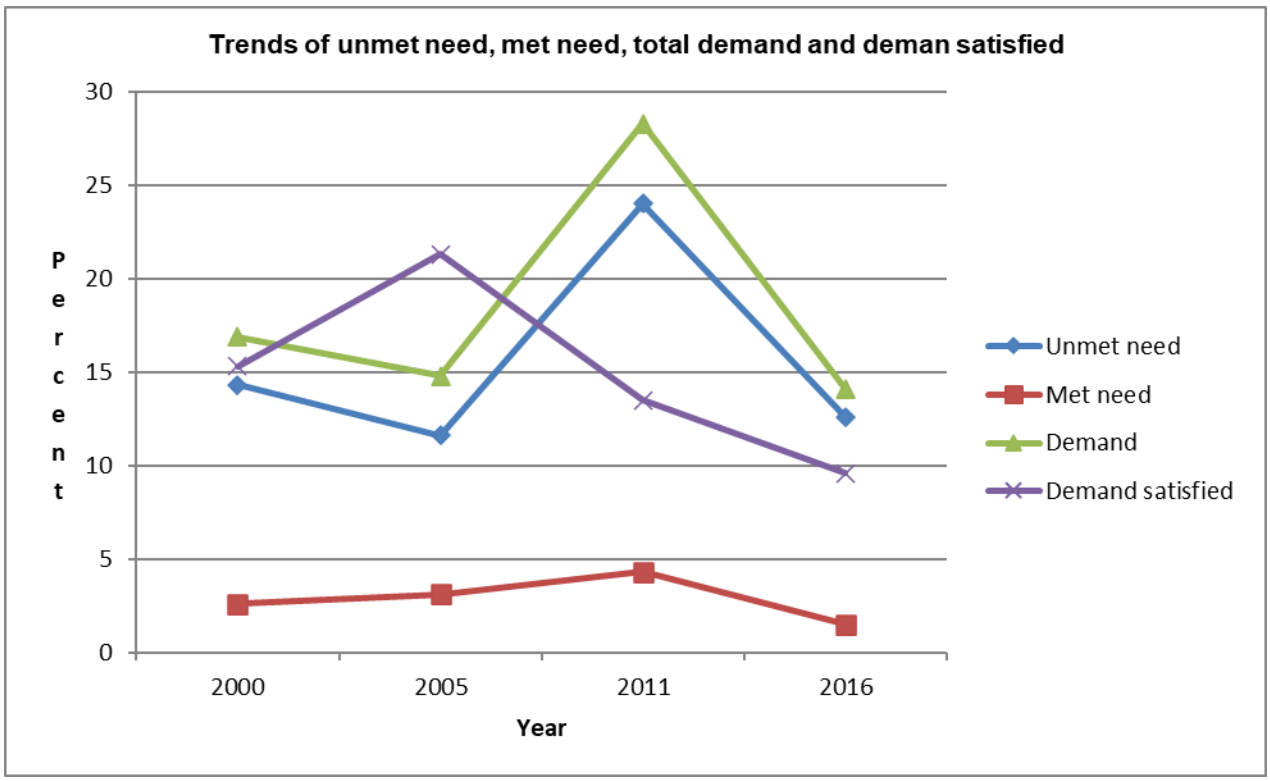

Figure 2.2 Trends of unmet need, met need, total demand and demand satisfied for FP in Somali region

(CSA [Ethiopia] & ORC Macro 2001:91; CSA [Ethiopia] & ORC Macro 2006:96; CSA [Ethiopia] & ICF 2012:10); CSA [Ethiopia] & ICF 2017:117)

2.5 FACTORS ASSOCIATED WITH UNMET NEED FOR CONTRACEPTION

Several factors have been identified as they have an association with women's unmet need for modern contraception. However, studies have not all reached the same conclusions as some are similar and others contradictory. Factors that have been identified by some researchers as having an association with unmet needs for modern contraception may not be true for other researchers. However, general factors that influence the unmet need for modern contraception were identified as demographic, socio-economic, cultural and institutional factors.

2.5.1 Demographic factors

The *age* of the women is considered as one of the main demographic factors that influence their unmet need for contraception (Gebre et al 2016:4; Nyauchi & Omedi 2014:1005-1006). A study conducted in rural Kenya showed that as the age of women

increases, the chances of them having an unmet need for contraception decreases (Nyauchi & Omedi 2014:1005-1006). According to Dejenu, Ayichiluhm and Abajobir (2013:30), when the woman's age increases, the level of unmet need decreases. Ayele et al (2013:16) present similar findings that the unmet need for FP is significantly higher among younger women. The percentage of unmet need was also decreasing with the increase in age among Nepalis' women (Kandel 2012:13). Gebre et al (2016:4) had different results, however, showing that as the age of the women increased, their level of unmet need for contraception also increased.

Although the findings of different researchers vary, *age at marriage* is among the factors that influence an unmet need for contraception. According to Hailemariam and Haddis (2011:82), the unmet need for contraception increases with an increase in the age at which a woman gets married. However, it has also been noted that the unmet need was higher among women who got married before 18 years of age (Akanksha, Nandkeshav, Kalpana, Vijay & Mohan 2014:26; Chakraborty, Roy & Mandal 2016:26).

The unmet need for modern contraception is also influenced by the *number of living children* a woman has. By comparing women with and without children, Ayele et al (2013:19) found that those who had living children were experiencing higher unmet needs than those without children. Similarly, other studies established that women with unmet needs were those with a higher number of children (Adebowale & Palamulen 2014:505; Nyauchi & Omedi, 2014:1005-1006). Kandel (2012:13) indicates that women who had no children were found to have lower unmet needs than those who had two or more children.

2.5.2 Socio-economic factors

The *educational level* and *occupation* of the women and their partners are taken as socio-economic factors that influence their unmet needs in various studies.

The educational level of the women and that of their partners are factors considered as influencing their unmet need for modern contraception. The unmet need for illiterate women was higher than those of literate women (Hailemariam & Haddis 2011:87; Vohra, Vohra, Sharma, Rathore, Sharma & Sharma 2014:22). A study conducted in rural areas of Burkina Faso also found that contraception use increases as the level of

education of the woman increase (Adebowale & Palamuleni 2014:505). Nyauchi and Omedi (2014:1005-1006) also determined that women with higher levels of education had lower unmet needs for contraception. A study by Misnaniarti and Ayuningtyas (2016:1682) in Indonesia revealed similar results. Women with elementary education had a higher chance of experiencing unmet needs compared to those women with high school and higher levels of education (Misnaniarti & Ayuningtyas 2016:1682). In Latin America and the Caribbean, women with no education are more likely to have an unmet need for contraception compared to women with secondary education or higher (UNFPA 2016:55). On the contrary, a study conducted in rural Maharashtra (India) revealed that the unmet need for contraception is higher among women with a secondary school education than those who are less educated (Tapare, Parande & Borle 2017:3368).

The literacy level of husbands also affects the unmet need for contraception. It has been asserted that women with educated husbands had lower unmet needs than those with illiterate husbands (Adebowale & Palamulen 2014:505; Vohra et al 2014:23).

The *occupation* of the women and that of their partners were considered as a noticeable factor influencing their unmet need for modern contraception (Kandel 2012:13; Vohra et al 2014:22). It is noted that unemployed women have higher unmet needs than those who are engaged in some kind of occupation or business (Vohra et al 2014:22). However, findings from a study conducted by Kandel (2012:13) indicated that the women's occupation did not have a significant association with their unmet need for contraception. On the other hand, Kandel (2012:13) also note that the unmet need for contraception was higher among women whose husbands were foreign employees or students than those women whose husbands were involved in local agriculture or business.

2.5.3 Cultural factors

Religion has been indicated as a cultural factor that influences women's unmet need for modern contraception. The findings of a study conducted in India by Vohra et al (2014:22) revealed that 61.29% of Muslim women's need for contraception were not met, whereas the unmet needs among Hindu women were 33.26%. On the other hand,

a study in Ethiopia indicated that Muslim women have significantly lower unmet needs for birth limiting compared to Orthodox women (Ayele et al 2013:16).

Having a *discussion with their partner and service providers* has also been cited as factors associated with an unmet need for contraception. Discussing FP with partners who have particular beliefs has an influence on unmet needs (Shifa & Kondale 2014:31). It has been found that women with higher unmet needs were those who did not discuss with their partners (Letamo & Navaneetham 2015:7-8). Gebre et al (2016:4) argue that those women who had discussions with health service providers about FP and how it clashes with their beliefs or religious tenets had less unmet needs for contraception.

Polygamous marriage is also considered as having an influence on the use of contraception, resulting in unmet needs (Kabagenyi, Reid, Ntozi & Atuyambe 2016:4). A study in Botswana showed that women with one partner had higher unmet needs than those with more than one partner (Letamo & Navaneetham 2015:7-8).

2.5.4 Institutional factors

The quality of contraceptive service delivery is another factor cited as it affects women's unmet need for modern contraception. Clients are more confident if they are served by qualified health professionals as the concerns women have in relation to contraception would be reduced (Thohirun, Kuntoro, Sunarjo & Wibowo 2015:24). The unmet need for modern contraception can be influenced by factors concerning service delivery in terms of accessing a full range of methods (Letamo & Navaneetham 2015:7). Being far from the health facility centres, the unavailability or inadequacy of contraceptives, and unaffordability can also cause clients not to be motivated to seek the services they need (Skiles, Cunningham, Inglis, Wilkes, Hatch, Bock & Barden-O'Fallon 2015:21).

2.6 BARRIERS NOT TO USE MODERN CONTRACEPTION

In efforts to allow women to use modern contraception to reduce their unmet needs, several barriers prevent them from having their modern contraceptive needs met. Most of the time, the barriers are related to the *accessibility* of modern contraceptive facilities (Ochako, Mbondo, Aloo, Kaimenyi, Thompson, Temmerman & Kays 2015:2). An

inability to get the modern contraceptive method of a woman's choice, unacceptable quality of service and gender-based barriers are taken as the reasons why women are not using modern contraception (WHO 2018a). The *attitude and belief* of the women and their partners in particular, and the society in general, can also be barriers to the use of modern contraception (Kabagenyi et al 2016:7).

Women who access modern contraception have a greater chance of using it than those without access (Jacobstein, Curtis, Spieler & Radloff 2013:S9). Access can be seen in terms of accessibility, availability, acceptability, affordability and adequacy of modern contraception. Most of the time, unplanned pregnancies occur when contraceptives are not easily accessed (Uddin et al 2016:18). Machiyama et al (2017:1) indicate that the major reason behind women's unmet need for contraception is an inability to access FP services. With regard to availability and acceptability, Cates and Maggwa (2014:16) state that in developing countries, limited options of contraception and acceptability of the available contraceptive methods contribute to the unmet need for modern contraceptive methods. Furthermore, it has been indicated that the availability and access to contraception are lower in sub-Saharan Africa than any other part of the continent (Jain et al 2013:137). A study conducted in Ethiopia confirmed this situation as about 43% of female respondents in a study conducted in South Central Ethiopia (Butajira) stated that they could not get the modern contraception of their choice in the nearby health facilities (Mekonnen & Worku 2011:5).

There are also a number of personal reasons that hinder women from using modern contraception in which *fear of side effects* is among the primary reasons women cite (Ajayi, Adeniyi & Akpan 2018:5; Aliyu, Dahiru, Oyefabi & Ladan 2015:16). Campbell, Prata and Potts (2013:46) claim that many African women believe that pills and injectables cause infertility. Female respondents in a study conducted in Uganda mentioned that modern contraception, such as Depo-Provera and pills, cause burning of the ova in women, which results in infertility (Thummalachetty, Mathur, Mullinax, DeCosta, Nakyanjo, Lutalo, Brahmbhatt & Santelli 2017:6). Similarly, it has been found that about 56% of women in a pastoralist community of Afar Region (Eastern Ethiopia) felt that contraceptives cause infertility (Alemayehu et al 2016:4). Gebre et al (2016:3) determined that 12.4% of female respondents cited fear of side effect as a barrier in Shire-Endaselassie (Tigray Region, Ethiopia).

Lack of knowledge about contraception has also been cited as a reason for women not using modern contraception (Muanda, Ndongo, Lauren, Messina & Bertrand 2017:1017). A study from Guatemala, Honduras, Chiapas (Mexico), Nicaragua and Panama reveals that more than 30% of all women did not know about any modern contraceptive methods (Rios-Zertuche, Blanco, Zúñiga-Brenes, Palmisano, Colombara, Mokdad & Iriarte 2017:552). Despite this fact, various research has shown that most women in all corners of the world are aware of modern contraceptive methods, with some exceptional areas (Sule, Omotese, Onajole & Ogunowo 2015:114). Knowing the methods, however, could not guarantee the use of contraception (Ochako et al 2015:8). In sub-Saharan Africa, it has been noted that although women seem to know about the various methods of contraception, the use is still very low (Blackstone, Nwaozuru & Iwelunmor 2017:87).

Myths and misconceptions about modern contraception are additional barriers to its use (Eram 2017:9; Gueye, Speizer, Corroon & Okigbo 2015:195). Eram (2017:9) indicates that misconceptions, such as that IUDs cause infertility, abortion and cancer, prevent women from using modern contraception. Misconceptions regarding an inability to get pregnant again and the myth that the pill causes cancer prevent women from asking for modern contraception in Kenya (Ochako et al 2015:4). Alaii, Nanda and Njeru (2012:2) argue that the perception that pills and injectable contraceptive methods cause birth defects result in women hesitating in using modern contraception. Gueye et al (2015:195) also state that contraception affects the health of women; that it hurts the womb is a common myth among women in Kenya, Nigeria and Senegal, and it acts as a barrier for them to use modern contraception.

In rural and pastoral areas where human power is highly needed, the need for many children is mentioned as a reason not to use contraception (Kock & Prost 2017:4). A study conducted in Afar (Ethiopia) indicated that more than two-thirds of women needed several children to compensate for the children who may die due to various reasons such as diseases (Alemayehu et al 2016:4). Lailulo and Susuman (2014:657) assert that a lack of access to FP and a lack of knowledge are mainly considered as barriers that prevent women from having more children than they intend. In Afar Region, about 40% of the women who participated in a study had never heard about FP methods, let alone modern ones (Alemayehu et al 2016:4).

Religion and partners' refusal were also cited as common barriers in many FP studies in developing countries (Zaidi & Hussain 2015:1). Female participants in a study conducted in Mexico (Chiapas) indicated that despite their intention to space births using contraceptive methods, their husbands did not allow them to do so (Dansereau, Schaefer, Hernández, Nelson, Palmisano, Ríos-Zertuche, Woldeab, Zúñiga, Iriarte, Mokdad & Bcheraoui 2017:5). In Bale Zone, southeast Ethiopia 55.9% and 17.5% of the respondents indicated religion and their husband's opposition as barriers, respectively (Belda et al 2017:5). Among the respondents in Awi Zone of Amhara regional state, religious prohibition and their husband's opposition constituted 11.8% and 23.5% of reasons not to use modern methods of contraception, respectively (Genet et al 2015:4).

There is, however, spatial and temporal variation regarding the barriers. In order to clearly indicate the causes and barriers, there is a need to explore each reason in its own context. This helps in designing appropriate interventions to let more women use modern contraception. Moreover, there have been variations among respondents in relation to the barriers, as indicated in the cited sources. This calls for an in-depth empirical investigation as to what each barrier means to each woman in a specific context.

2.7 THEORETICAL MODELS/FRAMEWORKS

'Theory' is defined as a well-organised construct which can be applied to explain certain phenomena (Nayak & Singh 2015:27). Theory is a backbone of research that explains how or why a phenomenon occurs (Rengasamy 2016:120). Lopez, Grey, Chen, Tolley and Stockton (2016:5) argue that theories and models can be used in order to "identify factors that influence health behaviour". Lopez, Tolley, Grimes and Chen-Mok (2009:411) also indicate that theories and models assist researchers in explaining how individuals' behaviour changes. Well-defined constructs of a theory can make comparison across studies possible (Brewer & Rimer 2008:150). Theory also "helps to observe and interpret reality" (Jonker & Pennink 2010:26-27).

There are several theories and models in studying the health behaviour of individuals. These include the HBM, the Social Cognitive Theory, the Theory of Reasoned Action, along with the later Theory of Planned Behaviour, and Protection Motivation Theory. Though the other models could be used to study health behaviour, the HBM and PHC

model were chosen for this study, as both are more appropriate to answer the research questions and objectives of the study.

2.7.1 Health Belief Model (HBM)

The need to predict health-promoting behaviour, such as the uptake of screening programmes, called for the emergence of HBM in the 1950s (Jones, Smith & Llewellyn 2014:254). The HBM is a model that bases its ideas on the fact that people's behaviour is guided by their values and beliefs (Brewer & Rimer 2008:152). The model can be used to predict people's attitudes and actions taken in relation to various health issues. The model can be used in various health behaviour researches, as in this study (Jones et al 2014:254). It is a model that has been found useful in FP studies (Mohsen et al 2016:64). The assumptions behind the model are that any person takes action if he/she has feelings of a negative condition that could be avoided (Mohsen et al 2016:55). Based on Hester and Macrina's (1985:250) assertion that the HBM can be used to predict and explain contraceptive behaviour among women, the researcher decided on its application to this study.

The HBM has seven core constructs which are perceived severity, perceived susceptibility, cues to action, perceived barriers, perceived benefits, self-efficacy, and modifying and enabling factors (Hall 2012:79). The model was used in this study to explain women's health behaviours by taking these constructs into account as described by Jones et al (2014:254-256) and Hall (2012:75), triangulated with other sources. These constructs are illustrated in Figure 2.3.

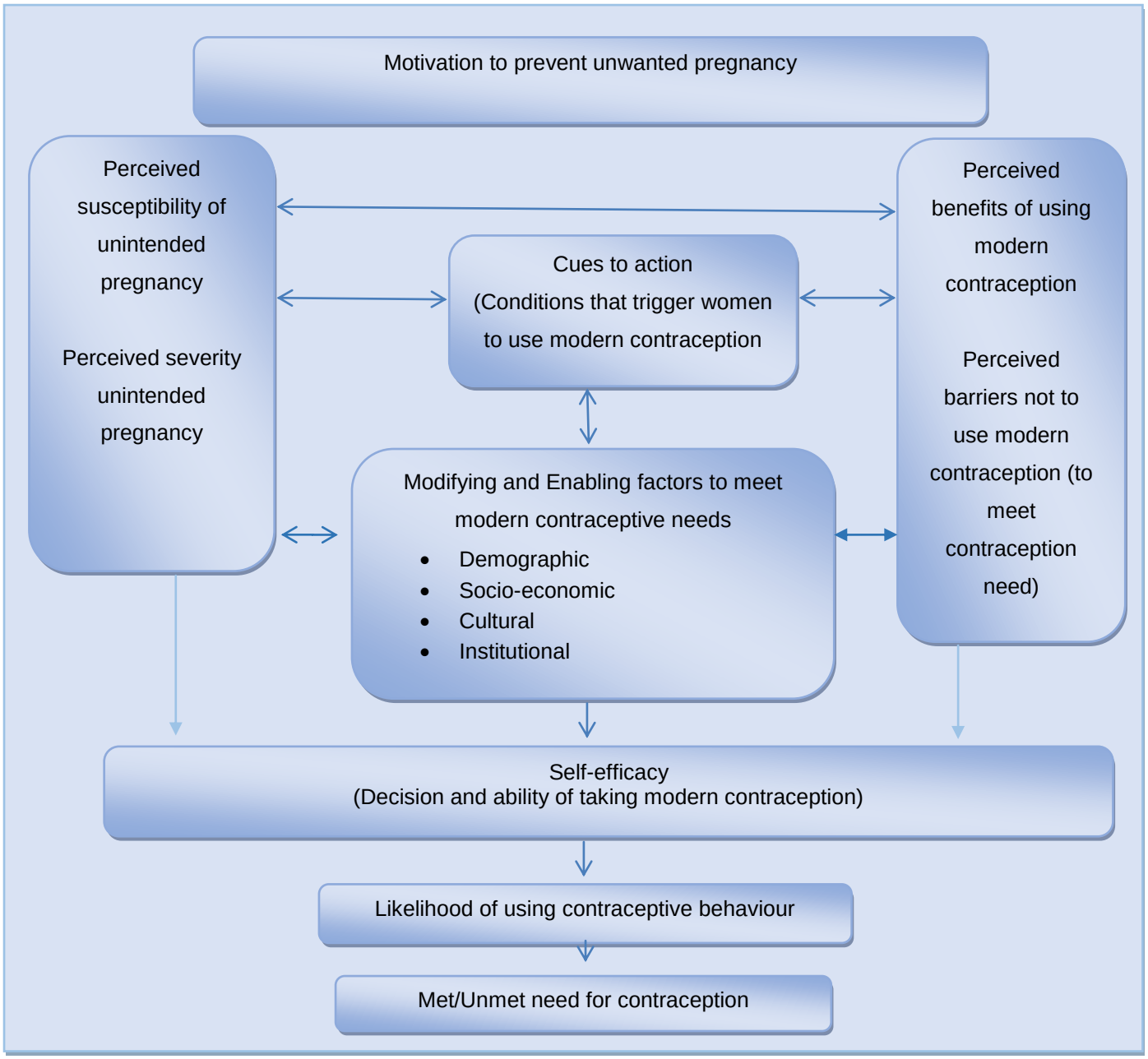

Figure 2.3 Health Belief Model

(Adapted from Hall 2012:79)

Perceived severity refers to one's opinion about how serious a condition and its consequences are (National Institutes of Health 2005:14). It has been argued that people take action when they think there is a severe consequence of certain situations (Brewer & Rimer 2008:152). The situation could be any health problem or unintended pregnancy. It is concerned with women's perception of how the consequences of unintended pregnancy, caused by not using modern contraception, affect their health condition in particular, and their quality of life in general.

Perceived susceptibility refers to the extent to which individuals feel at risk of being exposed to certain adverse conditions (Jones et al 2014:254). According to the HBM, individuals take some action to prevent illness if they believe they are susceptible to the condition which they want to avoid (Lopez et al 2016:6). Women may perceive that due to not using effective contraceptive methods, their chance of being exposed to unintended pregnancy and related health hazards is high.

Cues to action refer to "any factor that activates readiness to change" (National Institutes of Health 2005:14). Hayden (2014:71) defines 'cues to action' as anything that makes people change their behaviour. The conditions that activate a person to react can be any symptom or change in the state of the body or reminder from a health service provider. According to Kirch (2008:522), cues to action can be any bodily symptom or environmental event that alerts a person. Women could be stimulated by various factors to use modern contraception so that their unmet need for modern contraception can be reduced. The action may be triggered because of information from FP service providers, neighbours, friends or mass media.

Perceived barriers refer to a negative aspect people encounter when they think of taking action to avoid an unwanted phenomenon (Jones et al 2014:254). Hayden (2014:69) sees a perceived barrier as a person's evaluation of any event that hinders them from accepting new behaviour. In the efforts of taking modern contraception, women may face challenges and obstacles from various directions such as partners, religious leaders, relatives, or challenges related to accessing health service facilities.

Perceived benefits are related to perceived effectiveness and feasibility of using modern methods of contraception in order to avoid unintended pregnancies or other health hazards related to pregnancy (Hall 2012:76). It is the perception of individuals regarding the advantages they gain from a particular new behaviour or activity (Hayden 2014:32).

Self-efficacy is about one's confidence in taking action (Schwarzer & Warner 2013:139). Any individual holds beliefs in relation to their capability of performing certain activities. Hayden (2014:64) calls this kind of belief, 'self-efficacy'. It can be seen from the point of women's ability and self-confidence in using modern contraception to meet their need so that unwanted pregnancies are avoided or reduced.

Modifying and enabling factors are factors that hinder or motivate people to take a certain action. Hall (2012:76) argues that the use of contraceptive methods is influenced by modifying or enabling factors which depend on how the person perceives pregnancy. The modifying and enabling factors could be demographic, socio-economic, cultural or institutional. These factors influence women's use of modern contraceptive methods.

The elements of the PHC model were also appropriate to guide the data collection and analysis of this study.

2.7.2 Primary health care (PHC) Model

It is common to use the PHC model in research related to access to health care (Results for Development 2018:3). Access is defined as letting people get health care services when they need it, from the right service provider and at a convenient place (Saurman 2016:36). Levesque, Harris and Russell (2013:1) note that access is the cornerstone of any health care system. Access to health care has five major dimensions, as suggested by Penchansky and Thomas (1981:128-129), namely availability, accessibility, acceptability, affordability, and accommodation. Like other health care provisions, meeting the modern contraceptive needs of women and men can be challenging due to their inability to access the required methods. Thus, an unmet need for modern contraception is considered as a challenge in that women do not use them because they cannot find them or afford to pay for the desired contraceptive (Najafi-Sharjabad, Yahya, Rahman, Hanafiah & Manaf 2013:181). Women may also not be in a position to use a certain kind of contraception in spite of its availability, accessibility and affordability as it also needs to be acceptable to them.

Concerning availability and accessibility, Jacobstein et al (2013:s9) explain that modern contraception can be widely used among people in any society whenever it is available and accessible. The adequate supply of various modern contraceptive methods is also important in meeting the needs of women. Skiles et al (2015:20) note the importance of improving the accessibility and supply of modern contraction in order to reduce unmet needs.

2.7.2.1 Availability

The availability of the required service is a prerequisite so that people can use it. Sacci, Mkrtchyan, Dolyan and Armistad (2008:16) define 'availability' as the presence of at least three methods of modern contraception in the nearby pharmacies or health centres. It refers to the presence of resources needed to give the required services (Levesque et al 2013:6). It is also about the match between the resources and services available, and the needs of clients (Panezai, Ahmad & Saqib 2017:817). Different studies on contraception see the availability of modern contraception differently. For example, in a study conducted on pharmacies and PHC facilities in Armenia, the availability of contraceptive methods was considered as a condition to be fulfilled in order to improve FP to let women have options to use any method they prefer (Mayondi, Wirth, Morroni, Moyo, Ajibola, Diseko, Sakoi, Magetse, Moabi, Leidner, Makhema, Kammerer & Lockman 2016:2).

2.7.2.2 Accessibility

Accessibility is another important concept in the PHC model. Panezai et al (2017:817) define 'accessibility' as the suitability of the services, and clients can get the required service near their place of residence. The availability of resources is not sufficient to let clients use it but has to be in close reach of the people. Due to inaccessibility of FP services, women are faced with various challenges. In most cases, the causes behind unplanned pregnancies are related to a lack of access to effective contraception methods (Najafi-Sharjabad et al 2013:182).

2.7.2.3 Acceptability

Levesque et al (2013:5) see acceptability as the tendency to accept any aspect of services which are in line with the culture of the people and taken as appropriate to them. Acceptability can be seen in terms of the reaction of consumers in relation to the personal characteristic of health service providers and quality of service (Dillip, Alba, Mshana, Hetzel, Lengeler, Mayumana, Schulze, Mshinda, Weiss & Obrist 2012:2). Most often, a low level of demand and acceptability for health care services could arise from people's perception of incompatibility with their culture or lack of awareness about the benefit of the health care service being provided.

2.7.2.4 Affordability

Affordability is the sufficient availability of various resources to buy or pay for the required service (Panezai et al 2017:817). Levesque et al (2013:6) see affordability in terms of economic capacity and having sufficient time to get appropriate services. As the livelihoods of most households in sub-Saharan countries rely on subsistence agriculture (crop and livestock production), the women may not have the resources to spend on FP services in general, and buying modern contraceptives in particular. This mostly occurs in rural pastoral and agro-pastoral areas where government health facilities are not well expanded. Moreover, the time needed to access FP services can also be a challenge among women who are responsible for most of the household roles.

2.7.2.5 Adequacy

Dictionary.com (s.a.) defines 'adequacy' as the sufficiency of services or products in terms of quality and quantity to meet the needs of clients. Due to the lack of adequate contraceptive methods, women may not get the method they look for or prefer. A study conducted in Mexico asserted that because women were unable to get implants and injectables in their nearby health facility, they were forced to buy these products from private pharmacies, which may be costly (Dansereau et al 2017:5).

2.8 CONCLUSION

The literature review was conducted by consulting relevant sources on the study's construct. A general overview of FP globally and in Ethiopia, issues related to modern contraceptive prevalence, the prevalence of unmet need for modern contraception and factors associated with it, and barriers that hinder women from using modern contraception were discussed. The HBM and PHC models that were used to give logical structure to the study and the development of the instrument were also outlined.

The next chapter presents the research design and method of the study.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

This chapter presents the research design and method employed in the study, which have a great influence on the quality of a study (McCusker & Gunaydin 2015:541). Thus, a researcher has to critically consider the best approach to research and describe it well. The first section of the chapter describes the various research designs deemed appropriate for the study's data collection and analysis processes. The employed research designs were mixed methods and had both quantitative and qualitative components which were descriptive, exploratory and contextual. Each is described distinctively under each paradigm. The second section discusses issues related to the research methods, which include the population, sampling and sampling procedures, as well as the process and tools of data collection and analysis. The various ways of ensuring validity and reliability in the quantitative aspect and trustworthiness under the qualitative method are fully described. Research ethics was ensured by the researcher considering the rights of the study institutions, the rights of the participants and adhering to scientific integrity.

3.2 RESEARCH OBJECTIVES

The objectives of this study were to

- determine the prevalence of agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- determine the factors that influence the agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- explore and describe barriers that hinder agro-pastoral women from using modern contraception in the North Jigjiga District of Somali Regional State
- develop strategies to reduce the unmet need for modern contraception among agro-pastoral women of the North Jigjiga District of Somali Regional State

3.3 RESEARCH QUESTION

A research question is a specific question about behaviours, events or phenomena that a researcher needs to answer by conducting a study (Bhattacherjee 2012:21). Creswell (2014:143) asserts that a research question with reference to quantitative studies enquires about the relationship among variables that a researcher would like to know. Agee (2009:432) states that good qualitative research questions are usually developed or refined in all stages of the research.

The PICO approach was used to guide the development of the research questions and objectives (Grove et al 2013:703):

P – Population, in this study, refers to agro-pastoral women between the ages of 15-49 who are married or living in union, and living in selected *kebeles*/centres of North Jigjiga District.

I – Intervention refers to measures to be taken to improve the use of modern contraception among married agro-pastoral women in order to reduce their unmet needs.

C – Comparison is about comparing the experiences of agro-pastoral women in Ethiopia in relation to the unmet needs for modern contraception among women worldwide, as indicated in the reviewed literature.

O – The outcome of the study is the development of strategies to reduce agro-pastoral women's unmet need for modern contraception.

The developed research questions for this study were:

- What is the prevalence of agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State?
- What factors influence the agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State?
- What are the barriers that hinder agro-pastoral women from having their modern contraception needs met in the North Jigjiga District of Somali Regional State?

- What strategies could be developed to reduce the unmet need for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State?

3.3.1 Hypothesis of the study

A hypothesis refers to propositions that are stated in a form that shows a relationship between variables (Bhattacherjee 2012:13). According to Nayak and Singh (2015:55), a hypothesis is “presumptive statement of a proposition which the investigator seeks to prove”. They further note that a hypothesis assists researchers in following a realistic approach to the research problem they are studying (Nayak & Singh 2015:56). Moreover, a hypothesis “predicts the end result of relationship of the variables defined in the research question” (Habib, Pathik & Maryam 2014:16). Testing hypotheses entails statistical procedures in which the researcher draws inferences about the population used in the study’s sample (Creswell 2014:143).

There are different types of hypotheses.

3.3.2 Research and null hypothesis

A research hypothesis refers to a statement that shows the existence of a relationship between the independent and the dependent variables of a study. In contrast, a null hypothesis describes the absence of such a relationship (Polit & Beck 2010:160).

The research hypothesis suggested in this study is exhibited in Figure 3.1.

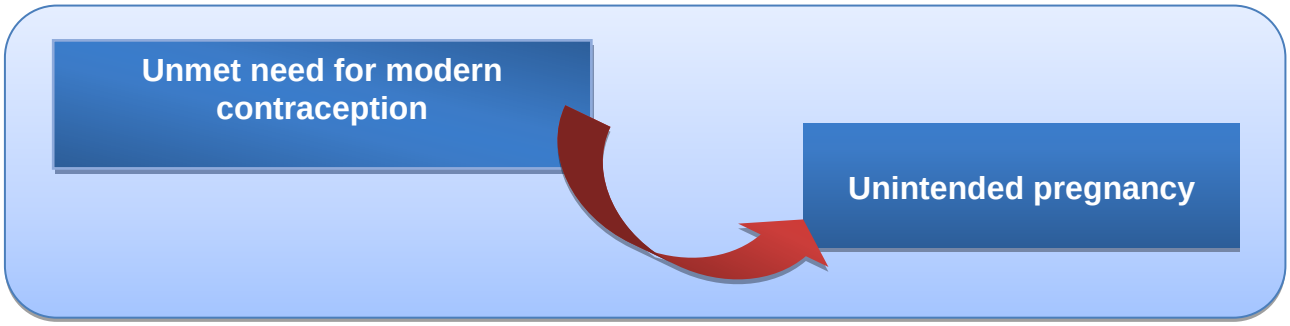

Figure 3.1 Research hypothesis

The research hypothesis of this study was that there is a significant association between unmet needs for modern contraception and unintended pregnancies among agro-pastoral women in the North Jigjiga District of Somali Regional State, Ethiopia. The null hypothesis of the study was that there is no significant association between the unmet need for modern contraception and unintended pregnancies among agro-pastoral women in North Jigjiga District of Somali Regional State, Ethiopia.

3.3.3 Directional and non-directional hypothesis

A directional hypothesis is a hypothesis that shows the direction of a relationship or the difference between variables of a study (Nayak & Singh 2015:58). Conversely, a non-directional hypothesis refers to a hypothesis that shows the existence of a relationship between variables without indicating the direction of the relationship (Polit & Beck 2010:160). This study had a directional hypothesis that the more the need for modern contraception was met, the more unintended pregnancy among agro-pastoral women declined.

3.3.4 Associative and causal hypothesis

An associative hypothesis refers to a hypothesis that shows a relationship among variables of a study (Grove et al 2013:149). However, a causal hypothesis indicates “a cause and effect interaction between two or more variables” (Grove et al 2013:149). The dependent and independent variables of this study were assumed to have an associative relationship. Thus, the associative hypothesis was that there was an

association between the unmet need for modern contraception and a reduction of unintended pregnancy among agro-pastoral women.

3.4 RESEARCH SETTING

Abdirahman, Mohamed, Warsame, Nur, Kasim and Mohamud (2012) define a 'research setting' as the place where a study is to be conducted and includes the geographic, socio-economic, cultural and political conditions of an area where data are collected for a study. The research setting highlights several salient characteristics of the study's respondents and draws attention to any available and relevant information with regards to the study at hand (Kumar 2011:230). Lune and Berg (2017:209) state that describing the research setting is an important aspect of any research report. Therefore, the setting in which the study was conducted is presented next.

The study was conducted in selected agro-pastoral areas of the Somali Regional State among health care providers from the health bureaus and facilities, and among agro-pastoralist women from the identified study sites. The Somali Regional State is located in the eastern part of Ethiopia.

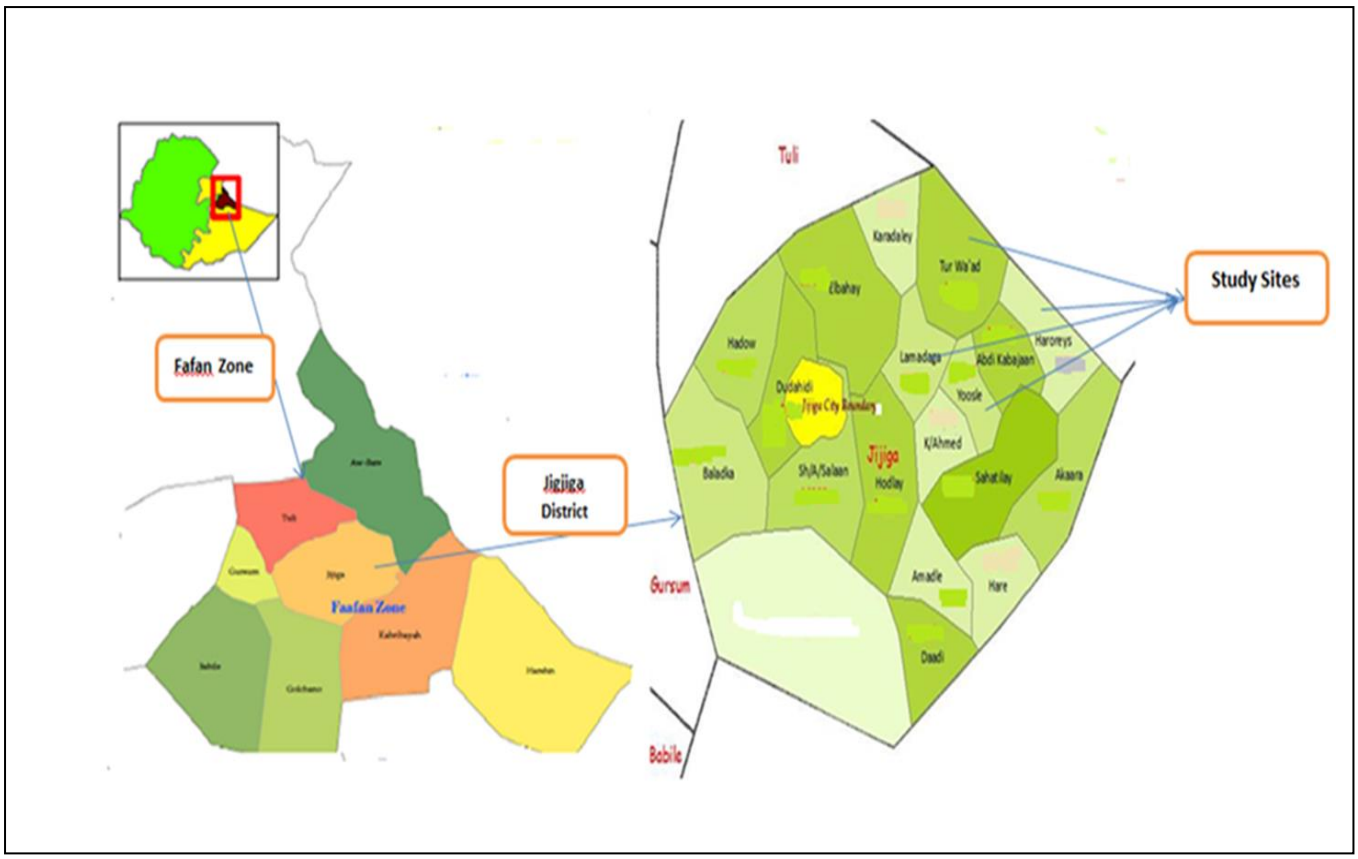

Figure 3.2 Map of the study area

(Bureau of Finance and Economic Development 2012)

Figure 3.2 shows a detailed map of the Somali Regional State which is the region where the majority of pastoralists/agro-pastoralists live. Agro-pastoralism comprises about 25% of the total rural population in the region (Brocklesby 2013:26). It has 11 administrative zones (Fafan, Sitti, Liban, Dhawa, Afder, Shebelle, Korahey, Doollo, Jarar, Erer and Nogob). Among all the zones, Fafan Zone was selected purposefully based on the presence of a large agro-pastoral population. The study participants were recruited from the North Jigjiga District, which is in Fafan Zone and from its health bureaus and facilities. Moreover, health professionals from the Somali regional health bureau who were engaged in FP service provision participated in the study.

North Jigjiga District consists of 17 centres. Among these, four were chosen randomly. The centres were Horaris, Lemedega, Harta Alebelo and Yosle. *Kebeles* from each centre were randomly selected. There is one health centre (Haroris Health Centre) and seven health posts in the North Jigjiga District; each health centre and health post are expected to serve about 25,000 and 5,000 people, respectively (MoH [Ethiopia] 2011:28).

3.5 RESEARCH METHODOLOGY

The research methodology section discusses both the research design and the research methods employed in the study.

3.5.1 Research design

A research design is a “blue print for maximizing control over factors that could interfere with a study’s desired outcome” (Grove et al 2013:43). Nirmala and Silvia (2011:68) define a ‘research design’ as a plan which leads the researcher to achieve the objectives of their study. According to Bryman (2016:40), the research design “provides a framework for the collection and analysis of data”. Moreover, in this study, it has been noted that the research design is about the preparation of parts that have to be incorporated in order to answer research questions and the hypothesis (Jha 2014:180). As a basis for this study, the research design had to be well crafted at the beginning of the research journey.

The study used the mixed methods of the quantitative and qualitative paradigm, exploratory, descriptive and contextual research design. These research approaches were chosen as they are ideal for achieving the objectives and answering the research questions of the study. As O’Dwyer and Bernauer (2014:36-37) mention, a complex phenomenon can be deeply understood if it has been researched using both qualitative and quantitative approaches as these methods complement each other. Among the types of mixed methods design, the study employed concurrent design. In concurrent design, the data collection and data analysis of both components occur simultaneously and independently (Schoonenboom & Johnson 2017:114). The qualitative and quantitative data were integrated in the discussion of results where appropriate.

The prevalence of an unmet need for modern contraception was empirically investigated and quantified. Factors that were associated with an unmet need for modern contraception were also investigated. The barriers that hinder agro-pastoral women from having their modern contraception needs met were explored and described. Finally, strategies that assist FP service providers in letting agro-pastoral

women meet their modern contraceptive needs to reduce their unmet needs were developed.

3.5.1.1 Quantitative research design

The purpose of quantitative research is to establish quantifiable data whereby the findings can be generalised to the population from which the sample is taken (Hennink et al 2011:16). The quantitative research design is rooted in positivism that assumes any phenomena among human beings can be studied objectively (O'Dwyer & Bernauer 2014:45; Parahoo 2014:42). According to positivism, a "single reality exists that can be measured" (Keele 2011:35). Moreover, Rahi (2017:2) argues that in a quantitative study, a researcher relies on a large sample size to get the information needed for the study. This study used this design to look for the prevalence of an unmet need for modern contraception and factors associated with it.

Quantitative studies utilise deductive reasoning since these studies are correlational and deterministic in nature. Deductive reasoning is defined as reasoning from the general to the specific, from a general premise to a particular situation (Grove et al 2013:691). The researcher in this study was able to test whether the variables were correlated or whether one variable caused a change on the other by means of analysing the relationship between the variables.

3.5.1.2 Qualitative research design

As the study used a mixed-methods approach, qualitative research was also taken into consideration. Qualitative research is an approach based on a subjective interpretation of phenomena and is mainly used to describe the lived experiences of human beings (Keele 2011:44; Parahoo 2014:55). Unlike quantitative research, qualitative research in this study assumes that 'reality' varies based on the perception of individuals (O'Dwyer & Bernauer 2014:26).

Qualitative research was suitable for this study as the researcher aimed to understand the experiences of the research participants (Campbell, Taylor & McGlade 2017:52). The qualitative research findings of this study were also used to further elaborate on the results obtained from the quantitative aspect of the study (Parahoo 2014:484). The

need for qualitative research on the study's construct is emphasised due to the dynamic nature of human behaviour and the sensitive nature of the research topic (Johnson & Christesen 2012:35). Furthermore, the qualitative research aspect for the study was used to explore in-depth responses in relation to agro-pastoral women's barriers and reasons for not using modern contraception in the study area. It was used to gather detailed information which was helpful in developing the strategies to be applied to reduce these women's unmet need for modern contraception. Inductive reasoning was employed to draw some conclusions.

Inductive reasoning is a way of reasoning starting from the specific observations so that general conclusions will be formed (Mauk & Metz 2017:39; Walliman 2011:17). Zalaghi and Khazaei (2016:24) take inductive reasoning as a reasoning strategy in which general principles are developed from specific cases. Mauk and Metz (2017:39) argue that most of the things we accept about our food, medicine and health in our life come from inductive reasoning.

3.5.1.3 Justification of the use of a mixed-methods research design

Johnson and Christesen (2012:32) note that since the 1900s many researchers have been advocating for the need to mix qualitative and quantitative research (mixed-method) in a single study. The need for mixed-method design has also been receiving much recognition in the recent past since single research designs may not be able to assist researchers to establish well-substantiated and in-depth analyses of some phenomena. With mixed-method research, one can answer various research questions in situations where a single method is unable to do so (Guest & Fleming 2015:582). Moreover, Kuada (2012:117) states that mixed methods provide the best picture of the research problem under investigation through the combination of qualitative and quantitative methods.

The use of mixed methods in this study is justified since both quantitative and qualitative methods helped the researcher to minimise the limitations of each method in order to produce valid and reliable results (McCusker & Gunaydin 2015:541). The mixed-method approach lets researchers make use of the strengths of the qualitative and qualitative methods (Keele 2011:50-51; Morse & Maddox 2014:2). The integration of quantitative and qualitative methods also permits the researcher to arrive at a complete and

comprehensive picture of the study (Creswell 2015:2; Wisdom, Cavaleri, Onwuegbuzie & Green 2012:723; Wisdom & Creswell 2013:1).

3.5.1.4 Exploratory research design

An exploratory research design is applied when researchers need to understand complex phenomena (Reynolds & Guest 2015:14). Issues related to the reproductive health of individuals is a sensitive and complex phenomenon which could be influenced by various social, cultural, economic and political factors. Thus, it is essential to use research designs that can properly address the issue under investigation. This research design was therefore employed to explore the barriers that hindered agro-pastoral women from using modern contraception.

3.5.1.5 Descriptive research design

Descriptive research is a design that gives details of various situations or relationships (Neuman 2014:38). Grove et al (2013:49) note that “the purpose of descriptive research is to explore and describe phenomena in real-life situation”. The descriptive research design is one of the designs applied in social and health science researches. It is a type of research design used to describe opinions, feelings, attitudes and beliefs of people about a certain phenomenon (Nayak & Singh 2015:63).

Based on the argument of Nayak and Singh (2015:63), descriptive research was an advantage in this study as the researcher knew something about the topic of interest and wanted to explore and describe it in more detail; especially the factors associated with the unmet needs and the barriers/reasons for agro-pastoral women in the study area not using modern contraception. As Reynolds and Guest (2015:14) put it, “descriptive studies are conducted to investigate a population's health service needs, experiences, or behaviours in order to inform interventions”. Thus, it allowed the researcher to propose practical and feasible intervention strategies to improve modern contraception prevalence to reduce the unmet need for the same.

3.5.1.6 Contextual research design

A contextual research design is mainly useful to have a better understanding of events happening in the study context (Kolko 2012:102). This design was used in this study to capture the routine activities the women were performing to prevent unintended pregnancy and the various barriers they were facing in their efforts to use modern contraception in the natural setting. The study also considered the contextual research design as the research was expected to produce interventions that could be applied in the context and other similar settings.

3.5.2 Research method

The research method refers to ways of gathering information for a study (Bryman 2016:40; Nayak & Singh 2015:2). The quality of research depends on the methods being used. Research methods also include sampling procedures to be followed and ways of data collection and analysis. Appropriate research methods guide researchers on how to take samples, collect and analyse data to establish valid and reliable results (Bryman 2012:xxxii). The research methods in this study covered aspects such as the population, sample, sampling method, sample size, data collection, data analysis and ensuring validity and reliability in the quantitative phase, trustworthiness in the qualitative aspect, and ethical considerations.

3.5.2.1 Population

The population, according to Polit and Beck (2012:274), is the aggregate of cases to which the researcher would like to generalise the results. A population is further defined as elements (individuals, objects, events or substances) that meet the sampling criteria for inclusion in a study, which is sometimes referred to as the target population (Polit & Beck 2012:274).

There are three types of populations in research which are general, target and accessible population, as exhibited in Figure 3.3.

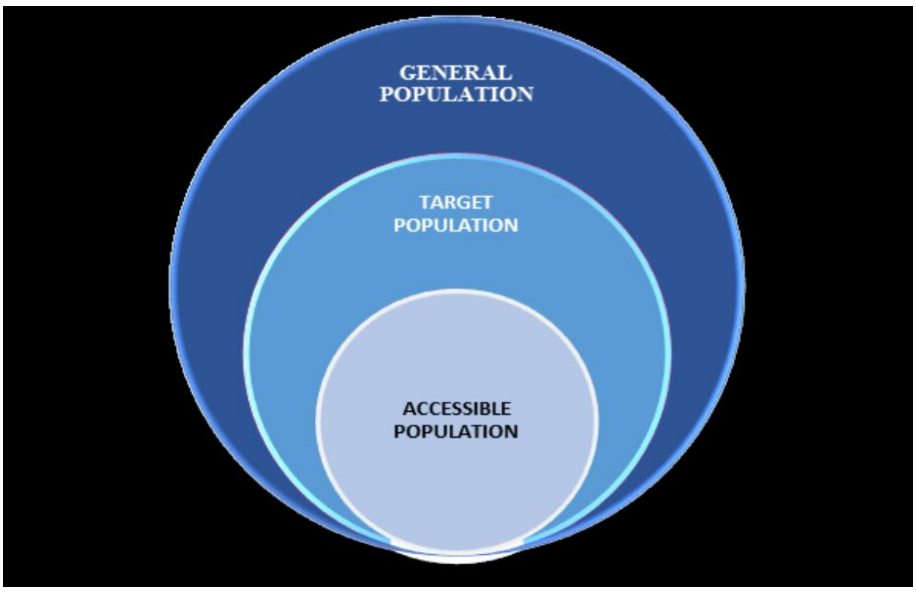

Figure 3.3 Population and sample

(Adapted from Asiamah, Mensah & Oteng-Abayie 2017:1611)

A general population is a certain group of people who share the same characteristics or elements, which is the focus of a study (Grove et al 2013:351). With regards to this study, the general population of the study was all the agro-pastoral women residing in Somali region, who were married or in a relationship.

A target population, according to Polit and Beck (2012:744), is the population as a whole in which a researcher takes an interest. This population possesses all stipulated inclusion criteria, and the researcher would like to generalise the study results to them. The target populations in this study were all the agro-pastoral women who met the sampling criteria and were residing in the selected *kebeles*/centres of the North Jigjiga District, and all health service providers in the Somali region health bureau and health facilities in North Jigjiga District.

The accessible population refers to participants drawn from the target population and accessed by the researcher in order to provide data for the study on the days when data are collected (Asiamah, Mensah & Oteng-Abayie 2017: 1614; Polit & Beck 2010:307).

3.5.2.2 Sampling and sampling technique

Sampling is the process of selecting study participants from whom data are to be collected (Daniel 2015:2; Grove et al 2013:37). As it is not realistic to conduct census in

most cases, taking a sample is essential. Jha (2014:206) indicates that sampling saves time, money and manpower, and is easy to manage.

In order to obtain participants and respondents for this study, the researcher had to choose the sampling techniques that were appropriate for the topic under investigation (Daniel 2015:2). There are generally two kinds of sampling techniques: probability and non-probability sampling. Probability sampling is a sampling procedure with a non-zero chance of a participant being selected as a sample (Jha 2014:189). Non-probability sampling is a sampling technique where the researcher intentionally selects participants based on parameters that the researcher thinks are applicable. Campbell et al (2017:38) argue that in research that demands representativeness, probability sampling is the best option, whereas non-probability sampling is mainly applicable for qualitative research.

As the study employed mixed-methods research, sampling procedures appropriate for quantitative and qualitative data were considered. This, in turn, gave the researcher a clear picture of the research problem under investigation to develop the strategies based on the finding.

(a) Sampling for quantitative data

The sample of respondents for the quantitative phase was obtained through the probability sampling method. Among the probability sampling procedures, the simple random sampling method was used. Simple random sampling is a probability sampling method which gives people or objects an equal chance of being selected to each element in the population (Jha 2014:195; Rahi 2017:5; Thompson 2013:2). A representative sample assists the researcher to avoid sampling biases, which is the main advantage of simple random sampling. However, use of such a method is costly, complex and time-consuming, especially when the respondents are geographically widespread (Alvi 2016:17). Alvi (2016:17) further notes that difficulty in getting “an exhaustive list of elements” is among the limitations of simple random sampling in such a context as in this study.

A multistage sampling procedure was employed to select respondents of the study. Four centres of North Jigjiga District were selected randomly. Simple random sampling

was also used to select 11 *kebele* among the four districts. Proportional to the size of the population of each selected *kebele*, the study participants were drawn randomly. When there was no woman who fulfilled the inclusion criteria in the selected household, the household next to it was recruited to participate.

(b) Sampling for qualitative data

The participants for the qualitative component were recruited purposefully. The purposive sampling technique is a non-probability sampling method in which the researcher deliberately selects participants based on the qualities needed from them (Etikan, Musa & Alkassim 2016:2). Purposive sampling is widely used to identify "information-rich cases related to the phenomenon of interest" (Palinkas, Horwitz, Green, Wisdom, Duan & Hoagwood 2015:533). Purposive sampling has its own advantages and limitations. When the researcher selects participants based on knowledge about the population, it is cited as an advantage of purposive sampling (Daniel 2015:16). On the contrary, purposive sampling has limitations as it requires the researcher to have adequate knowledge about the population and setting where the study is to be conducted. Daniel (2015:16) also contends that the purposeful selection of study participants is subjective.

In-depth interviews were conducted with health service providers (health bureau heads, nurses, midwiferies and public health officers). To supplement the quantitative data from the agro-pastoral women and qualitative data from health service providers, 30 agro-pastoral women who were purposefully selected were also involved individual in-depth interviews, particularly in relation to the barriers that hinder agro-pastoral women from using modern contraception. The participants were chosen based on their pregnancy status in order to incorporate their experiences. Women from each category, pregnant, postpartum and women neither pregnant nor postpartum amenorrhoeic who were fecund, participated in the individual in-depth interview.

(c) Sampling criteria

Various sampling criteria were used to identify participants to take part in the study. The following inclusion and exclusion criteria were used to select respondents for the quantitative phase:

Inclusion criteria:

- All agro-pastoral women between the ages of 15 and 49.
- Agro-pastoral women who were married or in union.

Exclusion criteria:

- Women who were not agro-pastoralist.
- Women who were not interested in participating.
- Women who were unable to respond because of health challenges.
- Women who considered themselves as infecund.
- Women not living with their husbands.
- Widowed, divorced or separated women.

Inclusion and exclusion criteria were also set to select FP health service providers for the qualitative phase of the study. The general population was all FP service providers in the region, whereas the target population was all FP health service providers fulfilling the inclusion criteria. Health professionals who were engaged in FP service provision, willing to give information for the study and available during data collection were the accessible population of the study.

The inclusion and exclusion criteria used to select participants for the qualitative phase were:

Inclusion criteria:

- FP service providers who worked in any health facility (health centres and posts) and health bureau.
- FP service providers responsible for FP programmes.

Exclusion criteria:

- FP service providers not willing to participate in the study.

3.5.2.3 Sample size

The sample size is one of the crucial parameters that need serious attention when planning to conduct research (Anthoine, Moret, Regnault, Sibille & Hardouin 2014:2). The sample size in this research considered various aspects related to the study. Daniel (2015:32-33) indicates that the objectives of the study, the nature of the population, available resources, and the type of research design are among the issues that have to be taken into account to decide on the sample size. In mixed-methods research, it is important to look for a sample size that meets the requirement for both the quantitative and qualitative phases.

(a) Sample size for quantitative phase

As the goal of quantitative research is mainly to produce results that can be generalised to the whole population (Bryman 2016:163), a relatively large number of respondents that are representative is needed. To this end, the formula proposed by Cochran (as cited in Rahi 2017:4) was used to calculate the sample size for the quantitative research component:

$$n = \frac{(z/2)^2 \, p\,(1-p)}{e^2}$$

n = sample size
Z = Z values (1.96 for 95% CI)
P = Prevalence form previous studies= 0.13
e = is the acceptable sampling error

1-P (1- 0.13) = 0.87

e = 0.05

$$n = \frac{1.96^2 \times 0.13 \times 0.87}{(0.05)^2}$$

$$n = \frac{0.4345}{0.0025}$$

= 173.8

N = 174

Design effect of 2 and a 10% non-response

174 x 2 = 348

Non-response rate of 10%

348 x 0.1 = 34.8

348 +35 = 383

Table 3.1 presents the proportionate sample size as recruited from each study site.

Table 3.1 Sample size for quantitative data taken from each *kebele*

Population group		**Estimated No.**	**Percentage = (Estimated No. x 100)**	**Sample**
Centre	***Kebele***			
Haroris (138)	Haroris 01	241	241/2296=10.5%	40
	Haroris 02	299	299/2296=13%	50
	Hasan Dobe	96	96/2296=4%	16
	Kudle	191	191/2296=8%	32
Harta Albelo (115)	Harta Alebelo	359	359/2296=15.6%	60
	Bonta 1	240	240/2296=10.5%	40
	Bonta 2	90	90/2296=3.9%	15
Lemedega (66)	Lemedega	245	2452296=10.7%	41
	Tur Watis	152	152/2296=6.6%	25
Yosle (64)	Yosle 1	265	265/2296=11.5%	44
	Kabada	118	118/2296=5.1%	20
Total		**2296**		**383**

(b) Sample size for qualitative data

It is difficult to predetermine the sample size of qualitative research as data have to be collected until no new information is obtained. When participants present no new data about the topic of interest, or when there is a redundancy of previously collected data, it is called saturation (Patten & Newhart 2018:101). As various qualitative researchers

propose a different sample size, Beitin (2012:2) argues that those who are engaged in qualitative research do not agree on the ideal sample size. Therefore, in this study, the sample size for the qualitative aspect was not predetermined. Data saturation was employed to determine the sample size, which means that data were gathered until saturation occurred (Beitin 2012:2). Accordingly, 10 health service providers (3 public health officers, 4 nurses and 3 midwives) and 30 agro-pastoral women participated in the qualitative data phase.

3.5.3 Data collection

Data collection is an organised way of gathering information to answer the research questions of a study (Grove et al 2013:45). It refers to “pieces of information obtained in the course of a study” (Clamp, Gough & Land 2011:196). Clamp et al (2011:196) define ‘data collection’ as a way of obtaining information from the real world. In this study, data that were necessary for the study were collected to answer the research questions and give conclusions and recommendations after analysis. In the context of this, study data were of numerical (quantitative) and non-numerical (qualitative) information and were collected following scientific procedures (Neuman 2014:9).

3.5.3.1 Data collection approach and method

Suitable data collection methods for both the quantitative and qualitative phases of the study were applied. An interview schedule (interviewer-administered questionnaire – Annexure E) was used to collect data from the respondents. The individual in-depth I interview (Annexure G and H) was used to collect ‘thick’ qualitative data to answer the research questions. The development of appropriate data collection instruments is one of the prerequisites that the researcher considered in order to gather relevant information for this research. Both the questionnaire and individual in-depth interviews were developed after a comprehensive review of literature was written in relation to the topic of the research and pre-tested (Annexure E-H).

3.5.3.2 Pre-testing of the data collection instrument

Willis (2015:218) defines ‘pre-testing’ as an evaluation of a research instrument using individuals who fulfil the inclusion criteria but are not included in the sample of the

survey. Pre-testing data collection tools is crucial to check the inclusion of relevant questions and to ascertain if there are questions included that might not be relevant for the research. It also helps the researcher revisit the tool to check if the questions are structured in a meaningful way. In support of the need to pre-test survey tools, Jacobsen (2017:129) states that tools that are used to collect research data have to be pre-tested and corrections have to be made accordingly.

The purpose of pre-testing was to determine how much time it would take to administer the entire instrument package. This was mainly to estimate how long it would take to administer a complete set. Moreover, pre-testing was done to identify parts of the instrument that may be difficult for respondents to understand, or that may have been misinterpreted, find questions that the respondents might find offensive, identify a need for further training of data collectors, and determine if the measures would yield data with sufficient variability (Polit & Beck 2012:296). Thus, the data collection tools (both the questionnaire and the individual in-depth interviews) were pre-tested using eligible sample respondents andparticipants who were not included in the main survey.

3.5.3.3 Data collection process

Once the tools for data collection were prepared and pre-tested, the next step was the data collection process. In the process of data collection, the qualification, readiness of the data collectors and the willingness of the respondents/participants also matter.

To collect reliable and valid data, the researcher used qualified and trained data collectors for the study. Data collectors who had at least a diploma in health science fields were recruited. The data collectors were also expected to be fluent in the language of the respondents/participants (Somali) and English. The data collectors were given two days' training on the ways of approaching respondents/participants and creating rapport. They were also trained on ethical issues such as confidentiality, anonymity, how to obtain consent from the participants, and various ways of administering both data collection tools. A confidentiality form was signed by the data collectors to maintain ethical issues as trained. The questions of the tools were also discussed with them so they could understand all the questions. The researcher was the primary data collector. As the study used a mixed-methods approach, an

interviewer-administered questionnaire (interview schedule) and individual in-depth interviews were used.

(a) Questionnaire (interview schedule) for quantitative data

A questionnaire is a research tool with a list of questions or items to be responded to by research participants (Nayak & Singh 2015:87). Questionnaires can either be completed by the respondents or administered by the interviewer (Jacobsen 2017:129). As some of the respondents might not able to read and write, the researcher used an interviewer-administered questionnaire (interview schedule) to collect the quantitative data. Godwill (2015:83) argues that interviewer-administered questionnaires are better for collecting complex information than self-administered ones, which can be taken as one of its strengths. However, as the interview uses structured closed-ended questions, it may not allow the researcher to be flexible (Godwill 2015:83).

(b) Collection of quantitative data

Permission was sought for from the *kebele* administrators as gatekeepers of the study area. Before going to the field, an assessment was made about the time during the day when agro-pastoral women had relatively free time to be interviewed. Accordingly, the time was fixed and the data collection was done consecutively for about one month. Due to the sensitive nature of the study, data were collected at the homes of the respondents. After obtaining consent to participate, data were collected from eligible agro-pastoral women between the ages of 15-49 years, who were willing to participate. An interviewer-administered questionnaire was conducted among 383 respondents who were proportionally recruited from the 11 *kebeles* of four centres, as indicated in Table 3.1.

During the data collection process, two supervisors, 10 enumerators and the researcher were involved. Each data collector was responsible for consistently collecting data according to the questions and submitting the completed questionnaires to the supervisor. Each questionnaire was checked by the supervisors and the researcher again checked if there were any incomplete or improperly completed questionnaires. All the completed questionnaires were collected daily and kept at the researcher's office under lock and key.

(c) Individual In-depth interview for qualitative data

Individual, in-depth interviews were used to collect qualitative data form health care providers and purposefully selected agro-pastoral women. Guest, Namey and Mitchell (2013:2) state that an individual in-depth interview is “a conversation designed to elicit depth on a topic of interest”. They further note that individual in-depth interviews allow researchers to get elaborate responses, and it is appropriate for sensitive topics, as is the case in this study (Guest et al 2013:5-6). Mears (2017:183) states that in-depth interviewing is an interaction between the researcher and a study participant to get detailed information about his/her knowledge, experience and feelings about the topic under investigation. Using in-depth individual interviewing as a method of data collection has its own advantages and limitations. Although this method seems expensive and requires significant time in the field, Singpurwalla (2017:14) argues that it can let the researcher probe adequately and gather detailed and needed information, and the response rate is often high, which is an expected advantage for this study.

(d) Collection of qualitative data

Qualitative data were collected from the professionals in charge of FP/maternal health in the Somali regional health bureau. Data were further collected from Fafan Zone health focal persons and health care (FP) providers of the health facilities at the North Jigjiga (Haroris) health centre and Yosle health post. Interviews were conducted by the primary researcher. In addition to the professionals in the health bureau and health facilities, selected agro-pastoral women were also interviewed. It has been reported that having qualitative data on the experiences of individuals who are accessing services can help researchers deeply understand the issue under investigation (Halcomb & Hickman 2015:42). A grand tour question was asked consistently to all the participants. The questions for the family planning service providers and agro-pastroal women were “What do you understand by use of modern contraception methods to reduce the unmet need for modern contraception for agro-pastoral women?, and “What are the factors/ issues/barriers that influence use of modern contraception to reduce the unmet need for modern contraception in your life as an agro-pastoral woman?” respectively. The question was followed by probing questions based on their responses. Probing, using open-ended questions, was used as it is an essential technique of motivating the

participants to give more detailed information and freely express themselves. Moreover, as human beings cannot remember everything they heard or write down all the information given, using a voice recorder is recommended. According to Bernand (2013:194), relying on memory should be avoided unless the interviewee is not willing to be recorded. Accordingly, the individual, in-depth interviews were audio-recorded after getting consent from the participants. As individual in-depth interviews were used for qualitative data, the data collection continued until data saturation. The interview was conducted in December 2019.

3.5.4 Data management and analysis

Data management is a process of collecting, recording, storing, cleaning, presenting data and making it accessible for verification and use by others (Peersman 2014:9). The data of the study were correctly managed. The participants' documents were also given codes to ensure their anonymity and confidentiality and kept under lock and key in the researcher's office.

The collected data has to be analysed to produce meaningful findings, conclusions and recommendations. The purpose of data analysis is to reveal what a researcher has discovered about the topic under study (Saldana 2014:89). Data analysis is about 'making sense' out of the gathered data (Bryman 2016:11). The data of the study were thus analysed in various appropriate ways depending on the type of data. As the study used a mixed-method research design, data management and analysis for both quantitative and qualitative data phases were employed.

3.5.4.1 Quantitative data analysis

The quantitative data were analysed through the use of the SPSS computer software program, version 24.0, in consultation with a biostatistician. Descriptive statistics were applied to quantify the prevalence of unmet needs for modern contraception among agro-pastoral women in the study area.

A multivariate logistic regression model was fitted to see the association between the independent variables and the unmet need for modern contraception. First, bivariate analysis was done to identify variables that were to be used in multivariate logistic

regression. Second, variables having a p <0.2 were entered in the multivariate logistic regression model. The fitness of the model was tested by the Hosmer-Lemeshow goodness of fit test (p-value=0.27). The model is said to fit if the p-value is greater than 0.05. A multicollinearity test was carried out to see if there was a correlation between independent variables with Variance Inflation Factor (VIF), which shows that there was no multicollinearity among the independent variables. According to Zhang, Zhou, Wang and Zhu (2017:2), multicollinearity is a situation whereby some covariates are partially or totally explained by the other covariates in a study. It has been further advised that multicollinearity has to be checked before running a regression as it produces unreliable estimates of coefficients and a wide CI (Zhang et al 2017:2). Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) along with a 95% CI were computed.

3.5.4.2 Qualitative data analysis

Data analysis in qualitative studies is “constructivist” in nature, with the goal to understand how individuals construct reality within their context (Polit & Beck 2012:562). The process of data analysis began during the transcription of the audio-recorded interviews. The qualitative data were thematically analysed with ATLAS.ti 8 software. Guest, MacQueen and Namey (2012:11) add that thematic analysis is “the most useful in capturing the complexities of meaning within a textual data set”. The thematic analysis approach includes inductive reasoning and a descriptive open coding technique (Creswell 2014:198; Grove et al 2013:89). Thematic analysis is about describing ideas based on their theme (Guest et al 2012:10). A theme refers to a regularity recurring idea emerging from an analysis of data and the meaning from data that relates to the research question at hand (Polit & Beck 2012:562). Thematic analysis is a flexible method that is not tied to a specific philosophical orientation whose goal is to identify, analyse and describe patterns or themes across the data set (Bryman, Bell, Hirchsohn, DosSantos, Du Toit, Masenge, Van Aardt & Wagner 2014:351). A thematic analysis method was used to describe, analyse and interpret the findings.

The process of listening to the audio-recordings and transcribing recorded data gave the researcher an opportunity to be immersed in the data, as this is important for data analysis. Dwelling with data means that one is fully invested in data and spend extensive time listening, reading, re-reading and interpreting the information (Gray, Grove & Sutherland 2017:270). In this study, thematic analysis focused on the human

perspectives of the study's construct, and emphasising, pinpointing, examining and recording patterns, themes or categories within the data.

The transcripts were read intensely and emerging themes and sub- themes /categories were identified. These themes were presented in a discourse for coding purposes. Thematic analysis – based on the grand tour question and the probing questions posed to health care providers and agro-pastoral women to elicit interpretations on their perspectives on how to address the unmet need for modern contraceptive methods for agro-pastoralist women in the rural areas – was conducted. This process was done following the seven steps suggested by Diekelmann and colleagues (1989 as cited in Polit & Beck 2012:568), which broadened the notion of thematic analysis as follows:

- All the transcripts were read for an overall understanding.
- Interpretive summaries of each interview were written.
- Selected transcribed interviews were analysed.
- There may be a need for the transcripts to be read all over again.
- Common meanings were identified by comparing and contrasting the interview summaries.
- Emerging relationships among themes and categories were noted.
- A draft of the themes with examples was presented to the study supervisor whose responses, corrections and suggestions were incorporated into the final draft.

Through this process, commonalities and variations among participants' responses were examined. Data were reduced into codes and clusters until themes, categories and sub-categories were developed. The steps of thematic analysis adopted from Braun and Clarke's model were used to analyse all the qualitative data (Braun & Clarke 2006, as cited in Howitt & Cramer 2011:336). Direct quotes were also used as meaning units.

3.5.5 Validity, reliability and trustworthiness of the study

3.5.1.1 Quantitative aspect

Validity and reliability are the two most crucial appraisal methods of an instrument, as they measure its accuracy as well as the extent to which it yields the same results on repeated measures (Bolarinwa 2015:195).

(a) Validity

Any instrument is said to be valid when it measures what it is expected to measure (Pandey & Pandey 2015:21). Various mechanisms were implemented to achieve the internal, face, content, construct and external validity of the study. Angell (2015:758) asserts that knowing if the data collection tool is valid allows researchers make sure they measure the construct they intended to measure.

- **Internal validity**

Internal validity refers to whether a study is designed, conducted and alanysed in way that allows trustworthy answers to the research questions (Andrade 2018:499). In order to ensure internal validity, the study participants were randomly selected from the well-defined study population (sampling frame). Moreover, the questionnaire was carefully designed by the researcher and validated through literature review, consultations with experts in FP, the study supervisor and the biostatistician.

- **Face validity**

Face validity refers to “the quality of an indicator that makes it seems reasonable measure of some variable” (Babbie 2016:526). The face validity of the questionnaire was ensured by allowing experts in FP to give their input. Moreover, it was ensured by requesting the assistance of health professionals who were working in health centres and universities to give feedback on the questionnaire (interview schedule) and adjustments were made accordingly.

- **Content validity**

According to Heale and Twycross (2015:66), content validity refers to the extent to which a measuring instrument provides adequate coverage of the content with respect to the variable of the study. Content validity was ensured by including questions that addressed the core issues in relation to the objectives and research questions of the study. Evidence was also obtained by conducting a comprehensive literature review, and feedback was obtained from experts in the field of reproductive health and FP.

- **Construct validity**

A measure is said to have construct validity if the degree to which it relates to other variables is as expected in the system of theoretical relationships (Babbie 2016:524). Construct validity was ensured by conducting a comprehensive literature review to define the major constructs of the study conceptually. The main terms in the research were also operationally defined. The questions of the questionnaire were also reviewed by a biostatistician to scrutinise the construct validity.

- **External validity**

External validity refers to whether a study's findings can be generalized in other contexts other than the study was conducted (Babbie 2016:691). The external validity was taken care of by using a standard data collection tool that had been tested. The sample size calculation also considered the non-response rate and the design effect of increasing the representativeness of participants of the study to the population.

(b) Reliability

Reliability refers to consistency throughout a series of measurements (Pandey & Pandey 2015:21). Polit and Beck (2012:741) define 'reliability' as the degree of consistency or accuracy obtained by use of a measurement tool or dependability with which a measurement instrument measures an attribute. The reliability of the tool was assured by conducting a pilot test of the tool by collecting data from 5% of respondents not included in the main sample. The Cronbach alpha coefficient was calculated to

assess the reliability of the questions of the questionnaire. A biostatistician was also consulted on these processes.

3.5.1.2 Qualitative aspect

(a) Ensuring trustworthiness

To ensure trustworthiness of the findings, the criteria of Lincoln and Guba (1998, as cited in Polit & Beck 2012:175-176) of credibility, transferability, confirmability and dependability were applied.

Credibility is about how accurately the data of a study reflect reality and how the findings could be trusted (Bryman 2012:49; Kalof et al 2008:162). In order to maintain the credibility of the study, the research approach was clearly described. Probes were used to collect in-depth data so that the results were well described. The researcher was available in the study area during the whole period of data collection and verbatim quotes were used the strenghethen the credibility of the study Methdological, data and theoritical triangulation were also considered to enhance the credibility of the study.

Methodological triangulation refers to collecting data using various methods of data collection to get detalled information (Abdalla, Oliveira, Azevedo & Gonzalez 2018:73; Dzwigol 2020:2), and it adds depth to the data collected (Manganelli, Threatt, Brooks, Healy, Merino, Yanik, P & Green 2014). Data collection methods, such as interviewer-administered questionnaires and individual in-depth interviews were used. Data triangulation refers to collection of data from multiple sources (Yin 2018:128). The data were collected from family planning service providers and agro-pastoral women. Theoretical triangulation refers to 'the possibility of exploring multiple theories, as a means of interpreting the same data group'. (Abdalla, Oliveira, Azevedo and Gonzalez 2018:73. The data were theoretically triangulated by taking the constructs of two models (HBM and PHC) in to consideration.

Transferability in qualitative research refers to the situation in which the findings of one study can be applied to another setting (Houghton, Casey, Shaw & Murphy 2013:13). The transferability of the study was ensured by taking great care in the selection of participants who were knowledgable about the topic of the study, and detailed

information of the particpants was given. Approppriate methods of data coolection and analysis were used so as to make the findings of the study reflect the percpectives of the participants. Moreover, the findings were reported clearly so that the steps followed can be audited and transferred to other settings. The context of the study was also thickly described.

Forero et al (2018:3) define '*confirmability'* as the degree to which others can confirm the research results*.* Confirmability was achieved through correctly documenting all the procedures of data collection and analysis. Moreover, triangulation was applied, and the limitations of the study were indicated.

Efforts were also made to achieve dependability in the study. Dependability refers to the consistency of findings across time and researchers (Hays, Wood, Dahl, and Kirk-Jenkins, 2016:174). *Dependability* was taken care of by the researcher being diligent in reporting every step of the research process.

3.6 ETHICAL CONSIDERATIONS

Research has its own ethics that should be respected. Going against research ethics can create unintended consequences, especially in social and health research whose subjects are human beings. Research ethics refers to "standards of professional conduct that researchers are expected to maintain in their dealings with colleagues, research participants, sponsors and funders, and the wider community" (Thomas & Hodges 2010:84). Ethics is a system of moral values that are concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants (Polit & Beck 2012:727). In every profession, there are ethical issues that have to be considered. Nayak and Singh (2015:305) argue that researchers are responsible for the wellbeing of participants who are involved in any research. In this study, measures were taken to ensure the rights of the institutions, respondents/participants and scientific integrity.

3.6.1 Protecting the rights of the study institutions

The rights of institutions involved in the study were protected. Happo, Halkoaho and Lehto (2017:116) assert that any research that involves human beings have to be

approved by concerned ethics committees before the investigation is conducted. The first institution was the University of South Africa. The researcher secured ethical clearance from the Research and Ethics Committee of the Department of Health Studies at the University of South Africa (Unisa) after fulfilling all their requirements (Annexure A). Moreover, a letter of permission to conduct the study was also obtained from the Somali regional health bureau (Annexure C). Permission was also sought from the administrators of the Fafan Zone health bureau, the Jigjiga District health bureau and centres/*kebeles* of Jigjiga District.

3.6.2 Rights of the respondents/ participants

The rights of the participants in the study were respected at all times.

3.6.2.1 Beneficence

Beneficence is about activities to “minimize possible risks and maximize possible benefits” (Corneli & Borasky 2015:3). It is always essential to keep the safety of study participants in mind. They should not be exposed to any harm because of their involvement in research. In this study, maximum care was taken to avoid risks and maximise possible benefits to participants of the research. As the data for the research were collected at the house of each participant, participants were not exposed to any harm. The participants might not get direct benefits on the spot, but the study would benefit them in terms of creating awareness about their need for modern contraception so that their health and that of their children would be improved.

3.6.2.2 Justice

Justice refers to “the fair selection of the study population, where the potential benefits and risks of research are distributed equally or fairly among study populations” (Corneli & Borasky 2015:3). Justice is also about treating study participants in a ‘proper’ way (Guest et al 2013:2). In order to respect the principles of justice, the researcher used appropriate sampling techniques and all participants were treated in the same way. Moreover, the culture of the respondents was respected at all times. The data for the research were also collected by female enumerators who knew the culture of the study participants very well.

3.6.2.3 Informed consent

In this study, the information letter was read to the participants so that they were aware of the objective of the study in which they agreed to participate. Informing participants about the research to let them take part in a study willingly after understanding its objectives and requirements is referred to as 'informed consent' (Guraya 2014:123). Participation in the study was based on the full consent of participants. The objectives of the research were clearly explained to the participants, and they were also informed that they could withdraw from the study at any time if it were not convenient for them to continue.

3.6.2.4 Respect for persons

The dignity and autonomy of any individual who is participating in a study should be respected. With regard to respect for persons, Babbie (2013:33) argues that those who are participating in research should do so based on their willingness and having understood what the researcher intends to do. Thus, the study used volunteer participants to take part in the study and a detailed explanation about the study was given to them.

3.6.2.5 Privacy and confidentiality

According to Corneli and Borasky (2015:3), privacy is mainly concerned with a safe place where participants give information freely without any concern. Due to the sensitive nature of the study topic, the privacy of the participants was assured by arranging places in their own homes where they expressed their feelings and shared their experiences in regard to the topic of the study. Confidentiality is concerned with handling data in which the identity of the research participants who had given information is not exposed to others, other than agreed in the informed consent (Corneli & Borasky 2015:3). Accordingly, confidentiality was maintained by keeping the collected data in a safe place and not sharing it with anyone other than the researcher and supervisor.

3.6.3 Scientific integrity

Winter (2014:30) argues that honesty and adherence to the ethics accepted by the research community is at the heart of scientific integrity.

The following measures were taken in order to ensure the scientific integrity of the study.

- An appropriate research design and methodology was employed and all the designs and methods used were clearly documented.
- Qualified and experienced data collectors were employed.
- The findings of the study were reported genuinely based on the gathered data.
- References used in the study are acknowledged and listed in the reference list.

3.7 DISSEMINATION OF THE RESULTS

A completed examined report will be made available to the management of the study context and to the study respondents, where needed. The results will be published with honesty through a written peer-reviewed article and submitted to an accredited journal.

3.8 SCOPE OF THE STUDY

The study focused on the unmet need for modern contraception among agro-pastoral women in selected districts/*kebeles* of the North Jigjiga Zone of the Somali Regional State. The study was restricted to the view of agro-pastoral women.

3.9 CONCLUSION

This chapter described the research design and the methods used to conduct this study. Mixed-method, exploratory, descriptive study designs were used and the research procedures of both the quantitative and qualitative paradigm were described. The research method entailed the population, sampling, sampling techniques, data collection, data analysis, validity and reliability, ensuring the trustworthiness of the measurement instrument and ethical considerations. Scientific integrity, dissemination of results, and the scope and limitations were also briefly presented.

The next chapter reflects the analysis, presentation and description of the study's findings.

CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH RESULTS

4.1 INTRODUCTION

4.1.1 Outline of the presentation

This chapter presents the results and discusses the findings of the study. The results are presented in two main sections. The first is the sample demographics of study respondents and the second is the presentation of the research findings from both quantitative and qualitative research methods. The research findings are presented in such a way that they are linked to the achievement of the study's objectives. The chapter commences by presenting the aim and objectives of the study and the procedures followed to analyse the data as an introduction of the chapter.

4.1.2 Aim of the study

The purpose of this study was to develop strategies to reduce the unmet need for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State, Eastern Ethiopia.

4.1.3 Research objectives

The objectives of this study were to

- determine the prevalence of agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- determine thefactors that influence the agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- explore and describe barriers that hinder agro-pastoral women from using modern contraception in the North Jigjiga District of Somali Regional State

- develop strategies to reduce the unmet need for modern contraception among agro-pastoral women of the North Jigjiga District of Somali Regional State

4.2 DATA MANAGEMENT AND ANALYSIS

4.2.1 Data management

The quantitative and qualitative data that were collected from all the agro-pastoral women and health service providers in the study area were managed. The collected data were checked for completeness, accuracy and clarity by the researcher. The data were kept in a password-protected file, on the researcher's computer to prevent unauthorised invasion, thus ensuring the data's confidentially.

The data for this study will be kept for five years in line with the university's research data management policy. Thereafter, the data can be discarded with the approval of the appropriate university official if no query was laid against the study that demand prolonged keeping of the data.

4.2.2 Data analysis

The data were analysed using appropriate analysis methods depending on the type, as described in detail below.

4.2.2.1 Quantitative data analysis

The quantitative data were analysed using SPSS software version 24 in consultation with a biostatistician. Descriptive statistics, such as frequency and percentage, and bivariate and multivariate analyses were applied to analyse the data. The fitness of the model was tested by the Hosmer-Lemeshow goodness of fit test (p-value=0.72). A multicollinearity test was also carried out to see if there was a correlation between independent variables with VIF (less than 5), which shows that there was no multicollinearity among the independent variables. COR and AOR along with 95% CI were also computed. A chi-square test was also run to see the association between the women's unmet need for modern contraception and unintended pregnancy.

4.2.2.2 Qualitative data analysis

The qualitative data were analysed thematically with the help of ATLAS.ti 8 software. The qualitative strand of the research was mainly used to answer the research question related to the barriers that hinder agro-pastoral women's use of modern contraception. The thematic analysis was done following Braun and Clarke's model of thematic analysis. First, the researcher repeatedly went through the transcribed data in order to familiarise himself with it. Initial coding was generated to identify and create themes. The themes were then reviewed in order to respond to the objectives of the study. The themes were defined and labelled, divided into sub-themes and described in detail. Direct quotations were also presented to strengthen the research argument. The participants were presented as codes in brackets at the end of the quotations. 'IISP' stands for an in-depth interview with family planning service providers and 'IIAW' for an individual in-depth interview with agro-pastoral women.

4.2.3 Integration of quantitative and qualitative data

Both the qualitative and quantitative data captured the reality about the tendency that most agro-pastoral women were not using modern contraception so that the unmet was high. The quantitative component of the study revealed the prevalence of unmet need and the factors that had association with unmet need for modern contraception. The qualitative component clearly explored the factors/barriers that hindered the agro-pastoral women from using modern contraception. It was with the qualitative data that the participants were given the chance to air their feelings about what challenged them not to use modern contraception. In the discussion of the results, the quantitative and qualitative data were integrated where appropriate. The quantitative data were used to strengthen the discussion of the qualitative result and vise versa. The strategies were also developed based on the results that were obtained from both the quantitative and qualitative data.

4.3 RESEARCH RESULTS

4.3.1 Quantitative section

The first section discusses the socio-demographic findings, followed by the results of the study based on the objectives of the research.

4.3.1.1 Sample demographic characteristics

- **Age group of respondents**

Figure 4.1 shows that the highest number of respondents (29.2%; n=112) were between 25-29 of age, making it the biggest age group in the sample. This was followed by the 30-34 and 20-24 age groups, which occupied the same place in terms of number; that is, 23% (n=88). The smallest group of respondents were aged 45-49, constituting only 3.4% (n=13) of the sample. This could be due to the increased probability of becoming infecund with the woman's increasing age.

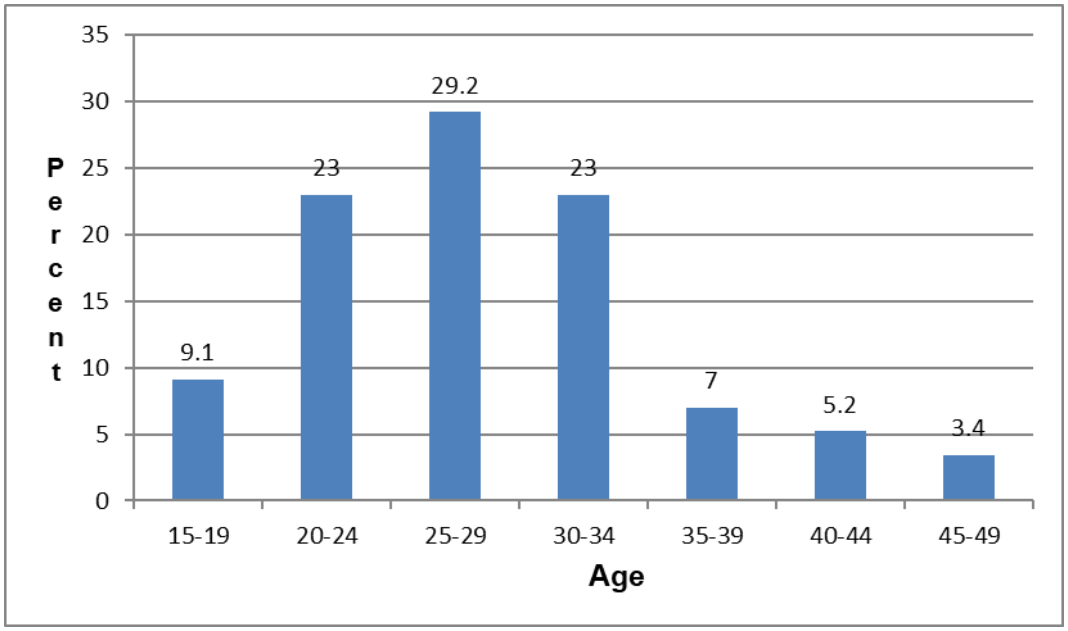

Figure 4.1 Age group distribution (N=383)

Women who were infecund were excluded from the study. Among the respondents, 9.1% (n=35), 23% (n=88%), 23% (n=88%) and 7% (n=27) were in the age groups of 15-19, 20-24, 30-34 and 35-39, respectively.

- **Educational level**

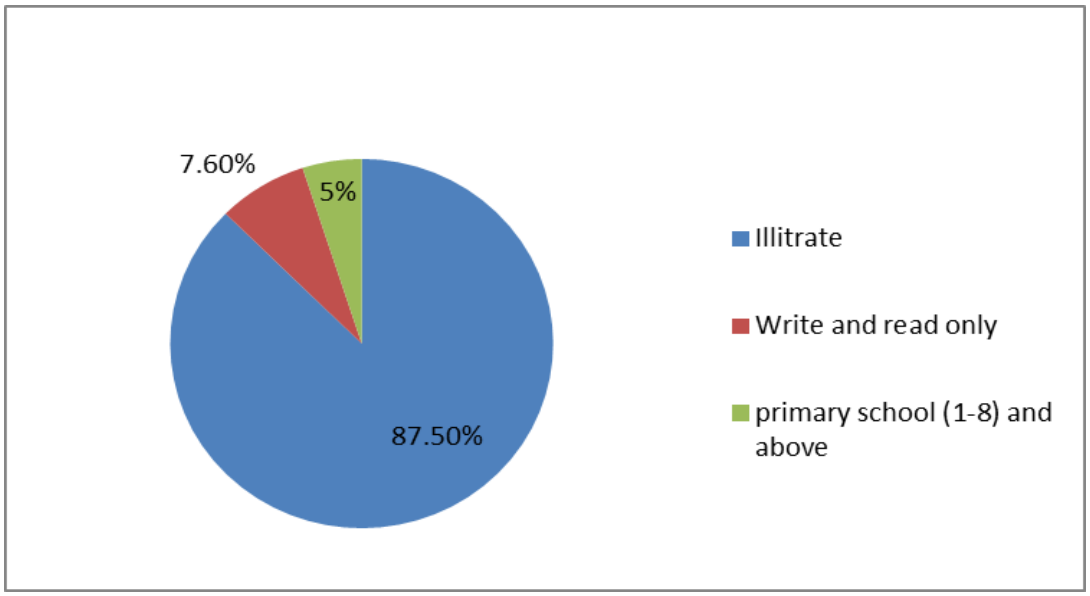

Figure 4.2 Educational level of respondents (N=383)

As presented in Figure 4.2, most respondents (87.5%; n=335) were illiterates. Respondents who could read and write constituted 7.6% (n=29) of the sample. Only 5% (n=19) of respondents attended primary school and above. This shows how the education sector has not been given attention in the study area, which is supposed to influence the use of modern contraception and reduce unmet needs.

- **Ethnicity and religion**

The ethnicity and religion of the agro-pastoral respondents were the same. All respondents were Somali women who were Muslims.

- **Occupation of the respondents**

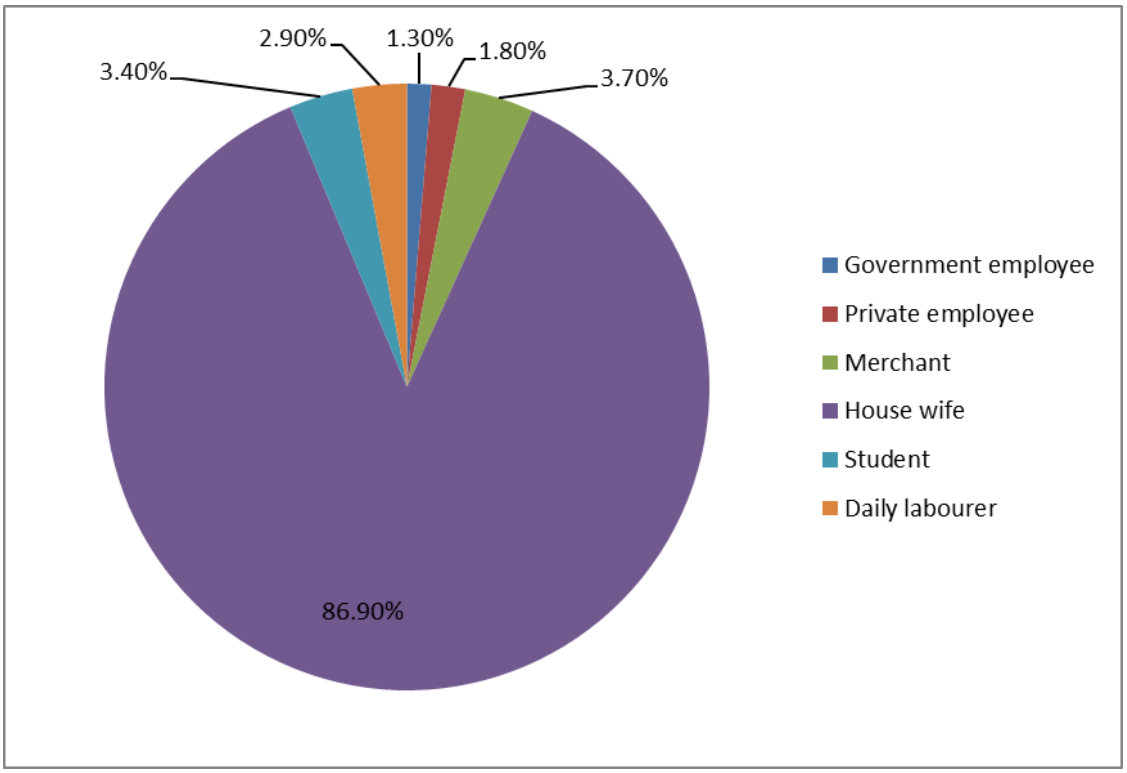

Figure 4.3 Occupation of the respondents (N=383)

The result indicates that most of the respondents (86.9%; n=333) were housewives. Women who were working as merchants constituted 3.7% (n=14); 3.4% (n=13) and 2.9% (n=11) were students and day labours, respectively. The remaining women were engaged in various activities such as working in government offices (1.3%; n=6) and running their own private businesses (1.8%; n=7).

- **Number of living children**

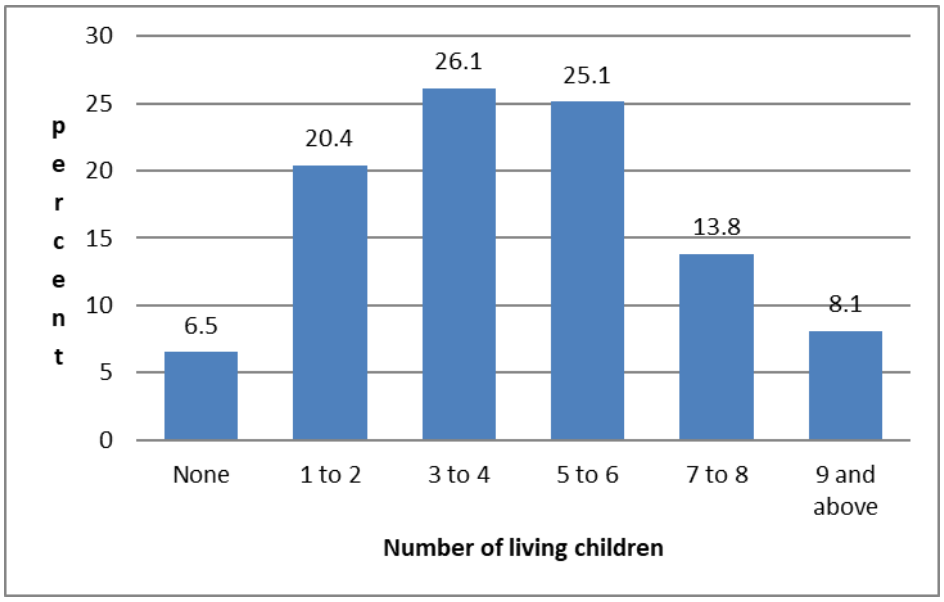

Figure 4.4 Number of living children (N=383)

Of the respondents, 51.2% (n=196) had 3 to 6 living children as depicted by Figure 4.4. This figure also shows that 26.1% (n=100) of the respondents had 3 to 4 living children, and 25.1% (n=96) had 5 to 6 living children. These two groups constituted the first two large family sizes in the sample. The study further found that 6.5% (n=25) of the respondents had no children at the time of data collection. The proportion of women who had 1-2, 7-8, and 9 and above children were 20.4% (n=78), 13.8% (n=53) and 8.1% (n=31), respectively. Pastoralists and agro-pastoralists of the Somali region are known for their need to have large families, with the ideal size being 10.6 children (CSA [Ethiopia] & ICF 2017:93).

- **Type of marriage**

It is common to find couples in polygamous marriages among Muslim communities in Ethiopia (Bogale & Mekonnen 2017:61). However, in this study, the majority of respondents (84.6%; n=324) were in monogamous marriages and the remaining 14.4% (n=59) was in polygamous marriages.

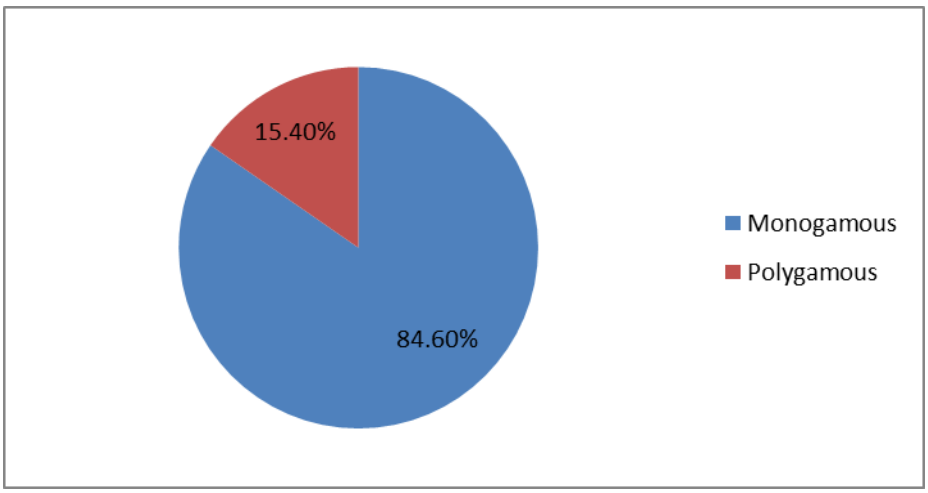

Figure 4.5 Type of marriage (N=383)

- **Age at marriage**

Figure 4.6 reflects that early marriage was a predominant feature in this study. About 91% (n=349) of respondents were married by the age of 19. Approximately 8% (n=31) of the women married between the ages of 20 and 25, and only 0.8% (n=3) married between ages 25 to 29.

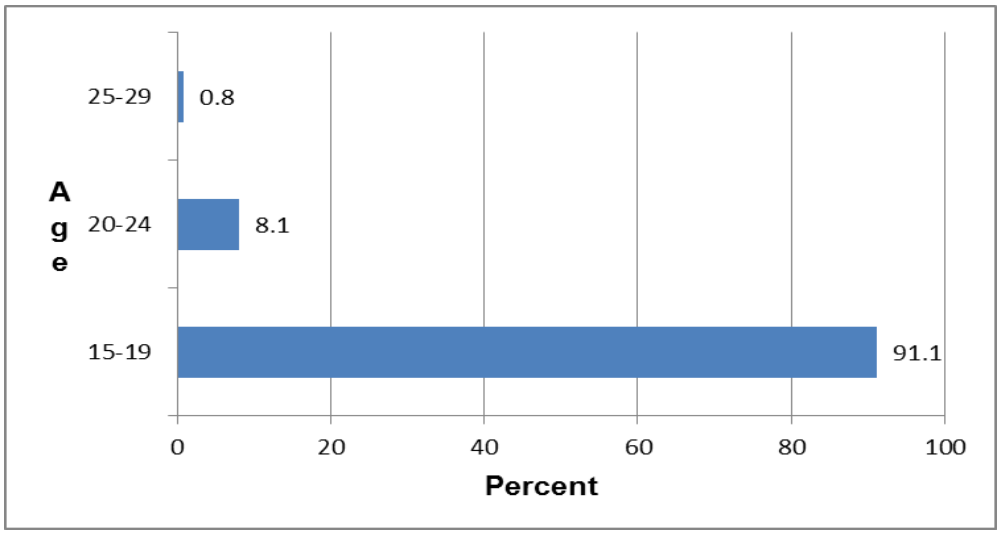

Figure 4.6 Age when married (N=383)

As to the family law of Ethiopia, both women and men should be at least 18 years old for a couple to get married (Federal Democratic Republic of Ethiopia 2000:3).

- **Occupation and educational level of husbands of the respondents (agro-pastoral women)**

As presented in Table 4.1, more than half of the respondents' husbands (58.2%; n=223) were day labourers. They were mainly working on construction projects and were also employed by well-to-do agro-pastoralists to perform various tasks. Those who worked in government offices constituted 10.7% (n=41).

Table 4.1 Occupation and educational level of husbands of the respondents (agro-pastoral women)

		Frequency	Percent
Occupation	Government employee	41	10.7
	Private employee	9	2.3
	Merchant	24	6.3
	Self-employed	49	12.8
	Unemployed	37	9.7
	Day labourer	223	58.2
	Total	**383**	**100.0**
Educational level	Illiterate	244	63.7
	Write and read only	60	15.7
	Primary school (1-8)	43	11.2
	Secondary school	14	3.7
	12 +1	22	5.7
	Total	**383**	**100.0**

Regarding their educational level, like their wives (who were the respondents), most men (63.7%; n=244) were also illiterate. This study further revealed that 15.7% (n=60) and 11.2% (n=43) respectively were able to write and read, and attended primary school. Moreover, the study found that 3.7% (n=14) of the respondents' husbands attended secondary school, while only 5.7% (n=22) of them were educated above grade 12.

4.3.1.2 Knowledge about family planning /contraception method

In the discussion on the use of FP, the first point that has to be raised is whether the person knows about the various FP (contraception) methods. Figure 4.7 shows the agro-pastoral respondents' knowledge in the study area. The women were asked if they had ever heard about FP methods.

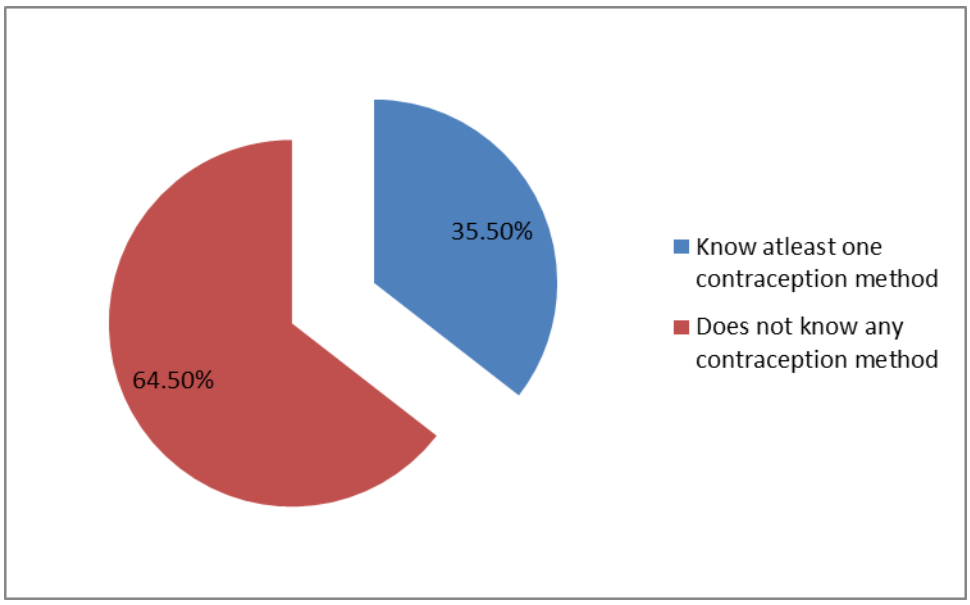

Figure 4.7 Knowledge about family planning/contraception method (N=383)

Of all the respondents, 64.5% (n=247) had not heard about any FP methods. Only 35.5% (n=136) were aware of FP. This indicates the poor performance of the health service sector in the study area in relation to FP. The finding of the low level of knowledge on FP among the respondents in the pastoral/agro-pastoral area was consistent with that of research conducted in the Southern Nations Nationalities People Region of Ethiopia, where the participants did not use any method of contraception and their knowledge about contraception was also very limited (Endriyas et al 2017:3).

4.3.1.3 Knowledge about modern contraception method

Regarding knowledge of modern contraceptive methods, the study found that 21.1% (n=81) of respondents were aware of at least one modern contraceptive method. Of all the respondents, 78.9% (n=302) had not heard anything about modern contraception.

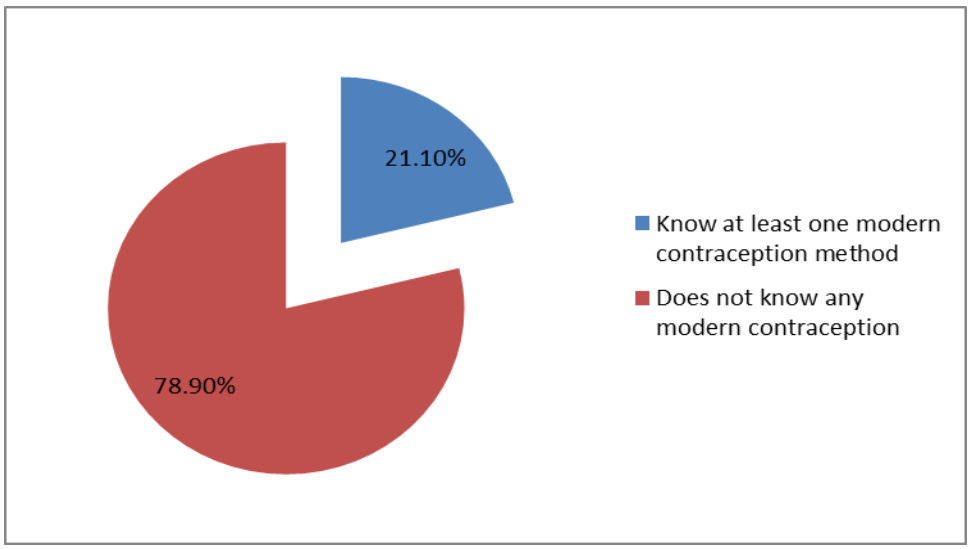

Figure 4.8 Knowledge about modern contraception method (N=383)

The proportion of women in the study who knew about modern contraception was very low compared to other areas in Ethiopia and other developing countries. Studies also reflect that 82.6% of female respondents in the rural Dembia District of northwest Ethiopia had heard about modern contraceptive methods (Debebe et al 2017:369), and 84% of women in the rural area of Nigeria were aware of modern FP methods (Okafor, Balogun, Sekoni & Dolapo 2019:16). In rural Madhya Pradesh, 85.2% of female participants were aware of modern methods of contraception (Sahasrabuddhe, Kori, Arora & Bute 2018:4727). Table 4.2 shows the proportion of respondents who knew about the various contraceptive methods in the study area.

Table 4.2 Knowledge of respondents about contraception methods (N=383)

Modern contraceptive methods	Yes (%)	No (%)	Traditional contraceptive methods	Yes (%)	No (%)
Injectables	54 (14.1)	329 (85.9)	Lactational Amenorrhea method (LAM)	76 (19.8)	307 (80.2)
Pills	46 (12)	337 (88)	Withdrawal	20 (5.2)	363 (94.8)
Implants	26 (6.8)	357 (93.2)	SDM	3 (0.8)	380 (99.2)
Emergency contraception	20 (5.2)	363 (94.8)			
Male condom	6 (1.6)	377 (98.4)			
Female sterilisation	3 (0.8)	380 (99.2)			
Male sterilisation	2 (0.5)	381 (99.5)			
Intrauterine device	1 (0.3)	382 (99.7)			

The LAM was most known to many agro-pastoral women, compared with all other methods. This indicated that most of the agro-pastoral women were not aware of modern contraceptive methods. Injectable contraception was the modern contraceptive method known to 14.1% (n=54) of the respondents. Pills, implants and emergency contraception stood in 2nd (12%; n=46), 3rd (6.8%; n=26) and 4th (5.2%; n=20) positions, respectively. It is also noted that the injectables and the pill are the most known modern contraception in Ethiopia (CSA [Ethiopia] & ICF 2017:104).

4.3.1.4 Knowledge of family planning service facilities and health extension workers visit

Most study respondents did not know where they could get FP services because of a lack of information. More than half (56.7%; n=217) of the respondents did not even know where FP services were being offered.

Table 4.3 Knowledge of family planning centre and health extension visit (N=383)

Item	Yes (%)	No (%)	Total
Do you know FP service centre?	166 (43.3)	217 (56.7)	383 (100)
Have you been visited by a health extension worker?	111 (29%)	272 (71%)	383 (100)

The study also found that the proportion of women who had been visited by health extension workers was 29% (n=111) as depicted in Table 4.3. This reflects the weak performance of the health extension programme in the study area. However, studies conducted in Ethiopia revealed the significant role that health extension workers are playing in providing FP information and services (Medhanyie, Spigt, Kifle, Schaay, Sanders, Blanco, GeertJan & Berhane 2012:5; Sedlander, Bingenheimer, Edberg, Rimal, Shaikh & Munar 2018:4). It has been noted that 72% (n=523) of rural women in the Tigray Region of Ethiopia were getting advice on FP from health extension workers (Medhanyie et al 2012:5). One of the reasons cited for the improvement of FP in particular, and maternal health in general in the country, is the contribution of health extension workers (Gebretsadik, Teshome, Mekonnen, Alemayehu & Haji 2019:5).

4.3.1.5 Prevalence of modern contraception

Modern contraceptive methods are recommended as they are effective in preventing unintended pregnancy (Beson et al 2018:1; Darroch et al 2017:2). According to the FP 2020 progress report, from July 2016 to July 2017, 84 million unintended pregnancies were prevented worldwide because of modern contraception (Darroch et al 2017:2). Despite this fact, the prevalence of modern contraception in the study areas was very low.

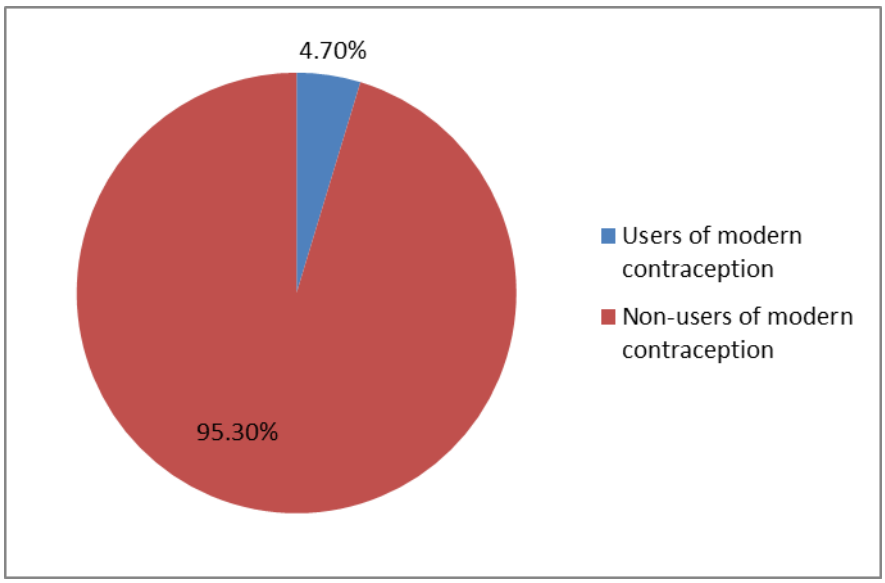

Figure 4.9 Prevalence of modern contraception (N=383)

According to Figure 4.9, only 4.7% (n=18) of the agro-pastoral women were using modern contraception, of which 4.4% (n=17) and 0.3% (n=1) were using such modern contraception to space and limit births, respectively. The prevalence of modern contraception in the study area was very small compared to the national average (35%), but a bit higher than the prevalence of the Somali region (1.5%).

The researcher compared the global average of the prevalence of modern contraceptive methods in general, and in other regions of the country in particular, and found that the number of women who were using modern contraception was very low in the study area. In 2017, 58% of married or in-union women of reproductive age used modern contraception worldwide (UN 2017a:6). As to a study conducted in Yaoundé (Cameroon), the prevalence of modern contraception use was 58.9% (Njotang et al 2017:4). The modern contraceptive prevalence among rural women in Anambra State (Nigeria) was 29.7% (Iloghalu, Ibeh, Modebe, Ezeama, Azuike & Obi 2018:5).

Studies show that the proportion of women who were using modern contraception in the various parts of the country was by far greater than that of the study area. The prevalence of modern contraception was 66.2% in Farta District, South Gondar Zone (Kassa et al 2014:510), 46.9% in North Shoa Zone (Mohammed et al 2014:5), and 31.7% in rural Dembia District (Debebe et al 2017:371). Moreover, 48.2% of women were using modern contraception in Wolayita Zone, Southern Nations, Nationalities and People's Region, Ethiopia (Gebremeskel et al 2017:451).

4.3.1.6 Types of modern contraception used

The injectables and the pill (2.6%; n=10 and 2.1%; n=8, respectively) were the modern contraceptive methods of choice used by agro-pastoral women in this study. Thus, the injectables were found to be the preferred modern contraception among the agro-pastoral women in the study area. Among the users, injectables and pills constituted 55.6% (n=10) and 44.4% (n=8), respectively. However, the study found that 95.3% (n=365) of the study respondents were not using any kind of modern contraceptive methods.

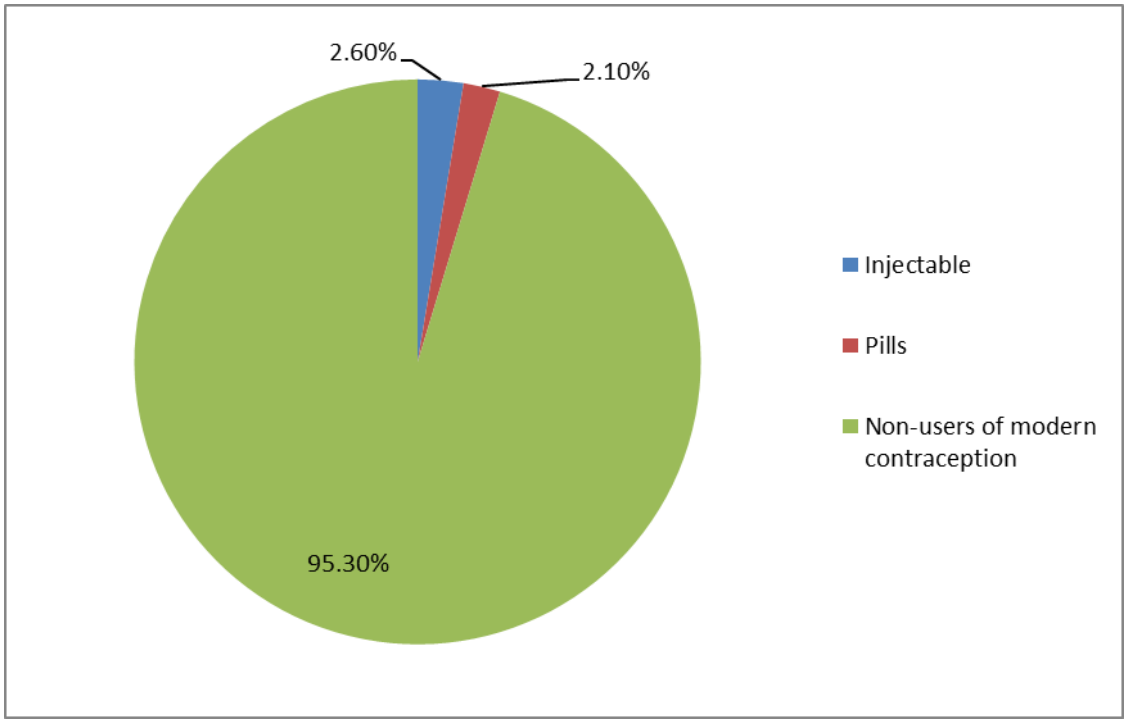

Figure 4.10 Types of modern contraception used (N=383)

It has also been documented that injectables were the dominant modern contraception used by women in most parts of Ethiopia. A study conducted in North Shoa Zone (Ethiopia) found that most women (62.9%) were using injectables, followed by IUDs (16.8%) and pills (14%) (Mohammed et al 2014:5). Injectables were also the most preferred method of contraception among women in Southern Nations, Nationalities and People's Region, Ethiopia (Endriyas et al 2017:4). Further, the injectable was the modern contraceptive method of choice among 30.2% the women of Saesie-Tsaeda Emba and Ofla Districts (Tigray Region) and 10.1% of them opted for the implant

(Gebre-Egziabher, Medhanyie, Alemayehu & Tesfay 2017:5). In addition, the injectable was found to be a dominant modern method of contraception used by women in Rwanda (Brunie, Tolley, Ngabo, Wesson & Chen 2013:e13).

However, modern contraception preferred by most women in other countries is different from that of women in Ethiopia. The male condom (8%) was the most preferred method of contraception followed by injectables (3%) and the pill (2%) in Cameroon (Kelodjoue 2015:44), whereas most women (32.1%) in Pakistan used IUDs, and 15.8% and 7.9% were using injectables and oral pills, respectively (Noreen, Khan, Khan, Khan & Khalid 2018:65). In Sudan, the most common modern contraceptive method among women was oral contraceptive pills (75.5%) (Abdalla & Ahmmed 2017:2) as compared with other methods such as condoms (1.5%) and skin patches (1.0%) which were found to be of less preference in that country. Dixit and Bandhani (2019:795) report that female sterilisation (30%), condoms (20.5%) and pills (9%) were modern contraceptive methods preferred by women in the Garhwal region (India).

4.3.1.7 Knowledge of modern contraception and its use

Though being aware of modern contraception is a prerequisite to utilising the methods, the study revealed that those who knew about it did not necessarily use it. Table 4.4 shows the relationship between respondents' knowledge of modern contraception and their use thereof.

Table 4.4 Cross-tabulation: knowledge and use of modern contraception

Knowledge of modern contraception	Use of modern contraception	
	Yes (%)	No (%)
	18 (22.2%)	63 (77.8%)

The study showed that though 21.1% (n=81) of agro-pastoral women knew about the modern contraceptive methods, they were not in a position to use these methods, for various reasons. Of the 81 who were aware of modern contraception, only 22.2% (n=18) were using them. The remaining 77.8% (n=63) of the women did not use any modern contraception though they were aware of the methods. This finding is in line with that of the research conducted in Kashmir Valley and Ghana, which indicated that

although women were aware of modern contraceptive methods, few were using these methods (Ashraf, Rahi, Maqbool & Bhat 2018:4; Beson et al 2018:5).

This shows that knowledge of contraception is not the only condition that facilitates the use thereof. This situation calls for an in-depth investigation into the reasons behind the use of contraception. The reasons/barriers that agro-pastoral women face in using modern contraception is discussed later in this chapter.

4.3.1.8 Source of modern contraception

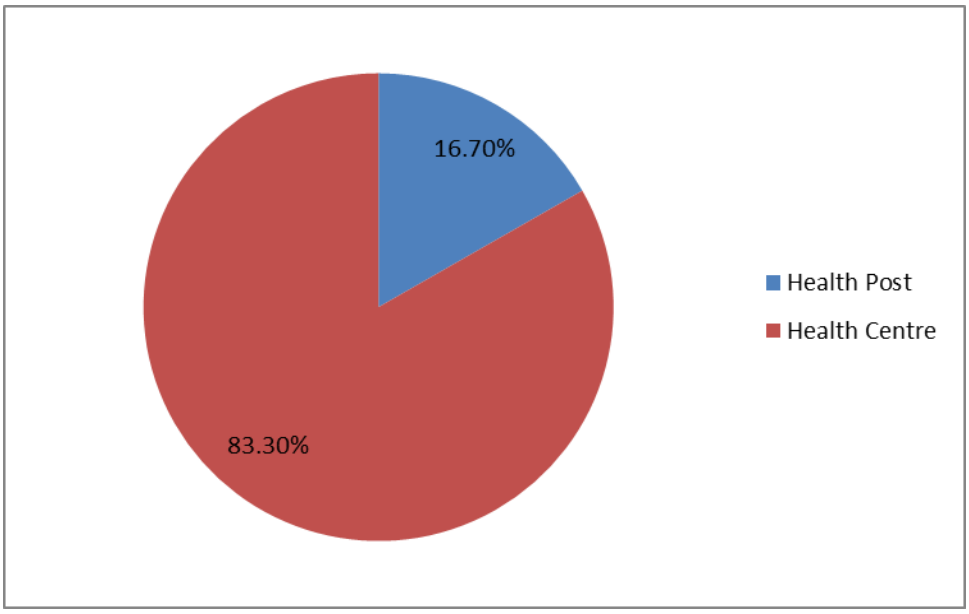

Figure 4.11 Source of modern contraception (N=383)

Among agro-pastoral women who used modern contraception (n=18), most (83.3%, n=15) in the study area were receiving modern contraception from health centres. The remaining 16.7% (n=3) were obtaining contraceptive methods from the health posts. It is also noted that 94% of women who participated in a study in Dessie (Ethiopia) were obtaining contraception from government health facilities (Tegegn et al 2017:4). In Ethiopia, the primary source of contraception is government hospitals, health centres and health posts (Marie Stopes International 2017:12). As hospitals may not be available in rural villages, it is expected that rural/agro-pastoral residents use health centres and health posts when they need any health care services.

4.3.1.9 Demand satisfied with modern contraception method

The study found that the proportion of demand satisfied with modern methods of contraception was low among the agro-pastoral women in the sample. The demand for modern contraception that was satisfied was computed by dividing the current modern contraceptive use by the sum of unmet need for modern contraception and current contraceptive use of any method. Accordingly, among the agro-pastoral women who were using any method of contraception (n=70, 18 modern contraception users and 52 traditional method users), only 9.9% (n=7) of their demand was satisfied with modern contraceptive methods. This indicates that the modern contraceptive needs of about 90% (n=63) of the agro-pastoral women who were using any kind of contraception had not been met due to various reasons.

Literature claims that the demand satisfied by modern methods in Africa was 56% in 2017 (UN 2017a:12). The demand satisfied by modern contraception among married women in Nigeria was 31.3% (Fagbamigbe, Afolabi & Idemudia 2018:6). Demand for FP satisfied with modern methods of contraception has also been identified as one of the indicators of the SDG (3.7.1) (Dockalova et al 2016:3).

4.3.1.10 Unmet need for modern contraception

Reducing/mitigating the unmet need for modern contraception is one of the indicators that measure the success of FP programmes worldwide (Harris, Reichenbach & Hardee 2016:105; Staveteig 2017:1). Meeting women's modern contraceptive needs improves the livelihood of the women, the children and the family as a whole (Jacobstein et al 2013:S9). In spite of this fact, a large number of women in the study area could not meet their need for modern contraception. Figure 4.12 shows the prevalence of unmet need for modern contraception in the study area.

The unmet need for birth spacing was 21.1% (n=81), and the unmet need for birth limiting was 8.1% (n=31) among agro-pastoral women in Eastern Ethiopia. Thus, the unmet need for modern contraception was found to be 29.2% (n=112). The proportion of unmet need for modern contraception in the study area was greater than the regional and the national figure. The prevalence of unmet need for FP was 12.6% in the Somali

region (CSA [Ethiopia] & ICF 2017:117) and 22% in Ethiopia (CSA [Ethiopia] & ICF 2017:103).

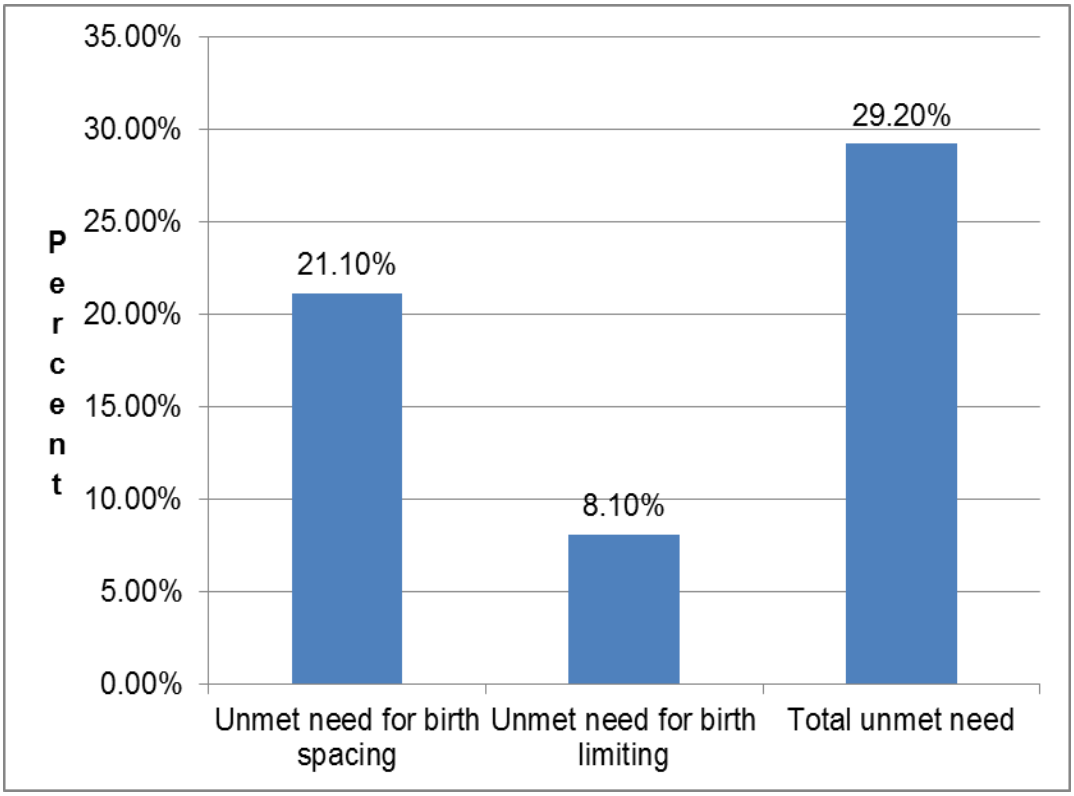

Figure 4.12 Unmet need for modern contraception among agro-pastoral women in Eastern Ethiopia (N=383)

The prevalence of unmet needs for modern contraception thus varies in the different parts of the country. Gebre et al (2016:4) indicate that 21.5% of women in Shire-Enda-Slassie, Northern West of Tigray experienced an unmet need for modern contraception. A study conducted in Misha District of Southern Ethiopia revealed that 26.5% of married women had an unmet need for FP (Chafo & Doyore 2014:4). An unmet need for contraception has also been reported in Eastern Sudan, where it was estimated to be 44.8% (Ali & Okud 2013:2). A study conducted in Pakistan discovered that the unmet need for contraception was 19.55% (Khan, Zareen & Shahzad 2018:166). The unmet need for FP in rural villages of India was also reported at 9.1% (Nazir, Mittal, Anand, Goel, Singh & Rashid 2015:88).

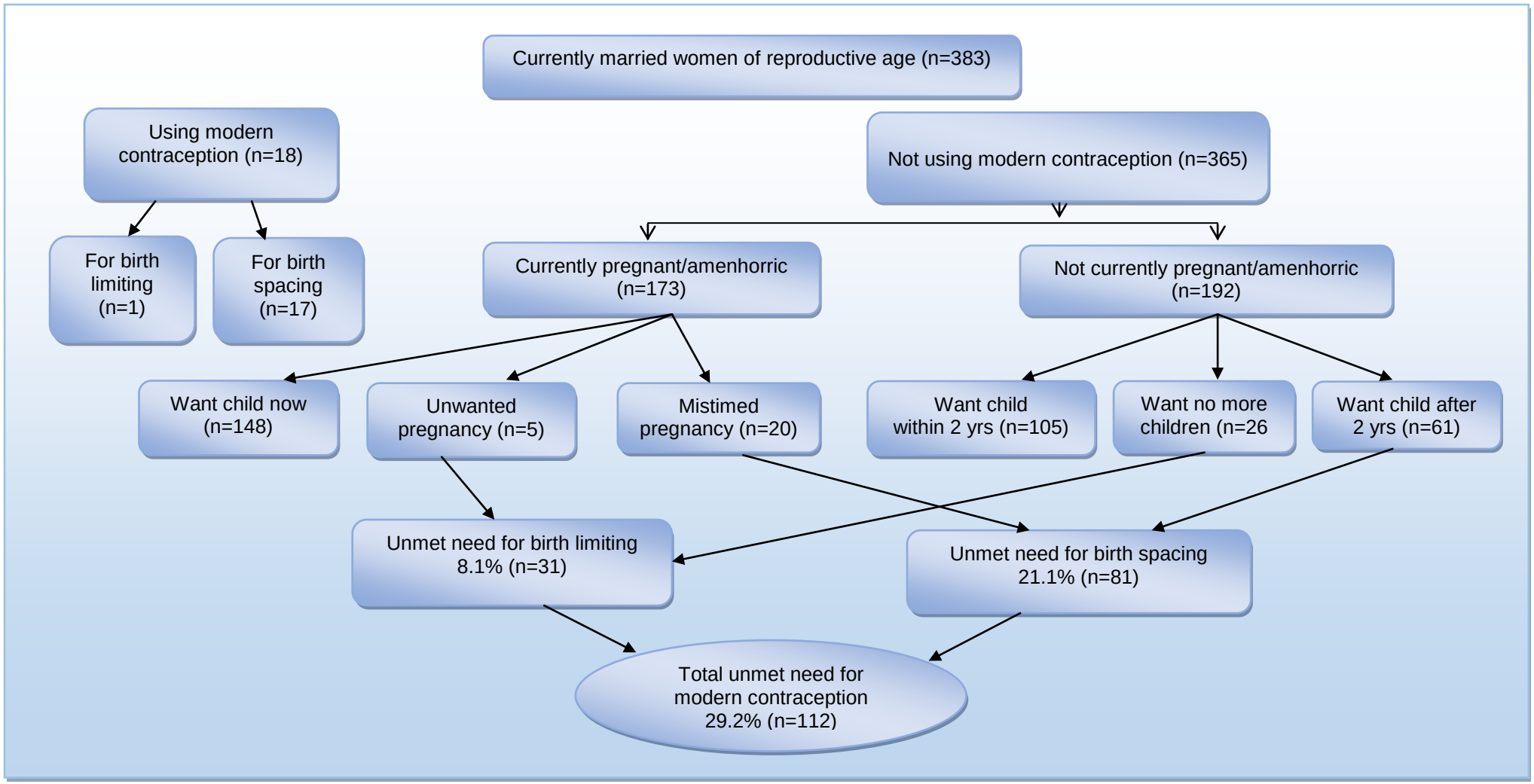

Figure 4.13 Algorithm of unmet need for modern contraception among agro-pastoral women in North Jigjiga District 2019

4.3.1.11 Reasons for not using modern contraception: quantitative result

- **Personal and household-related reasons**

In spite of the need for modern contraception in particular, and FP services in general, agro-pastoral women were constrained by various challenges. Accordingly, religion, lack of husbands' and family members/relatives' support, an inability to make the decision to use modern contraceptive methods, and scarcity of money to look for modern contraceptive-related services were identified as the major barriers that prevented agro-pastoral women in the study area from meeting their modern contraception needs.

Table 4.5 Personal and household-related barriers of not using modern contraception (N=383)

Questions	Yes (%)	No (%)	Do not know (%)	Total (n)
Does your religious belief act as a barrier to modern contraceptive use (n=383)	145 (37.9)	167 (43.6)	71 (18.5)	383
Does your spouse/partner support you about the use of family planning /modern contraception? (n=383)	27 (7%)	356 (93)	-	383
Can you decide use of modern contraception without the influence of your partner? (n=383)	22 (5.7)	361 (94.3)	-	383
Is your family/relatives in support of your use of modern contraception? (n=383)	18 (4.7)	365 (95.3)	-	383
Has money ever hindered you from the use of modern contraception? (n=383)	52 (13.6)	331(86.4)	-	383

It was found that most respondents' husbands and relatives were not in a position to support the agro-pastoral women's desire to use modern contraception. Among the respondents, 93% (n=356) of the women did not get any support from their husbands to use modern contraception. For women in the study area to use modern contraception, their husbands need to be involved and play a significant role (Fah & Sheng 2017:11). Thus, the husband's attitude towards the use of contraception has a significant impact on decision-making related to modern contraception. Moreover, 95.3% (n=365) of respondents were not supported by their relatives to use modern contraception. In

regard to their autonomy to decide to use modern contraception, 94.3% (n=361) of respondents indicated that they did not have the power to decide for themselves to use modern contraception.

The study also found that religion and economic standing played a role in decision-making related to contraception. For example, 37.9% (n=145) and 13.6% (n=52) cited religion and lack of money as reasons not to use modern contraception, respectively. Only 18.5% (n=71) of the respondents did not know if religion was a reason not to use modern contraception.

- **Family planning service-related reasons**

The study revealed various factors that women took as reasons for not visiting health facilities to obtain modern contraception. The reasons indicated in Table 4.6 were obstacles which women experienced when they were visiting health facilities.

Table 4.6 Service-related barriers in obtaining contraception

Variable		n	%
Time it takes to reach a health facility (n=164)	Less than ½ hour	48	29.30
	½ hour to 1 hour	57	34.80
	1 to 2 hours	36	21.90
	More than 2 hours	12	7.30
	Don't know	11	6.70
Waiting time at the health facility (n=159)	No wait	28	17.60
	Less than ½ hour	28	17.60
	Half to one hour	29	18.24
	1 hour and above	26	16.35
	Don't know	48	30.19
Sufficient privacy during consultation (n=164)	Yes	92	56.10
	No	72	43.90

The study identified barriers in reaching a health facility or access to a service to obtain contraception as the amount of time it takes to reach a health facility, waiting time at the health, facility and sufficient privacy during the consultation.

- **Time it takes to reach the health post/centre**

One of the motivating factors that encourage women to visit health centres/posts is the presence of health facilities close to their home. However, this study found that women had to travel long distances to receive the service. As can be seen in Table 4.6, 34.8% (n=57) of those respondents who had an opportunity to visit health facilities had to travel for 30 minutes to one hour to arrive at their destination. About 29.2% (n=48) of the women had to travel for more than one hour. For a woman who had been burdened with household activities, spending such an amount of time to obtain modern contraception was not easy. Thus, the agro-pastoral women were finding it challenging to receive FP services despite their need.

- **Waiting time at health facility and feeling of the women about it**

In this study, 17.6% (n=28) of the respondents indicated that they received the service they needed when they arrived, whereas 30.2 % (n=48) did not know how long they waited before they received FP services in the health facilities. The proportion of women who indicated they waited for less than thirty minutes, 30 minutes to one hour, and more than one hour constituted 17.6% (n=28), 18.2% (n=29) and 16.4% (n=26) respectively. When people go to health centres, they expect to be attended to and receive service as soon as possible. If anyone waits for a long time to receive a service they need, he/she will be discouraged from visiting the health facility again. This especially held true for women who came to the health facility for modern contraception. As women attend health centres with some level of expectation that as soon as it is possible, they can return home and take care of their household activities, they wish to be attended to and return home right away. Moreover, due to various reasons they did not want to be seen in the health facility, obtaining contraception. Thus, they wanted to get the service immediately.

- **Privacy**

The issue of privacy was found to be one of the concerns of women in the study area. Among 164 women who had an opportunity to visit health facilities, 43.9% (n=72) were not happy with the privacy aspects at the facilities. They indicated that privacy during consultation with the health service providers in the health facility was limited. Clients in health facilities need to discuss their health concerns with the health service providers freely and confidentially. Moreover, due to their religious belief, privacy was crucial for the respondents. Women who attend FP services want privacy for several reasons, including hiding themselves from sight and preventing being recognised by their neighbours, family members and relatives.

4.3.1.12 Perception of agro-pastoral women about the quality of family planning (modern contraception) service provision

Quality of service is one of the factors that encourage clients to look for a particular health facility or service. In spite of the small number of health facilities and service providers, some of the agro-pastoral women were attending some health facilities to acquire FP/modern contraceptive methods.

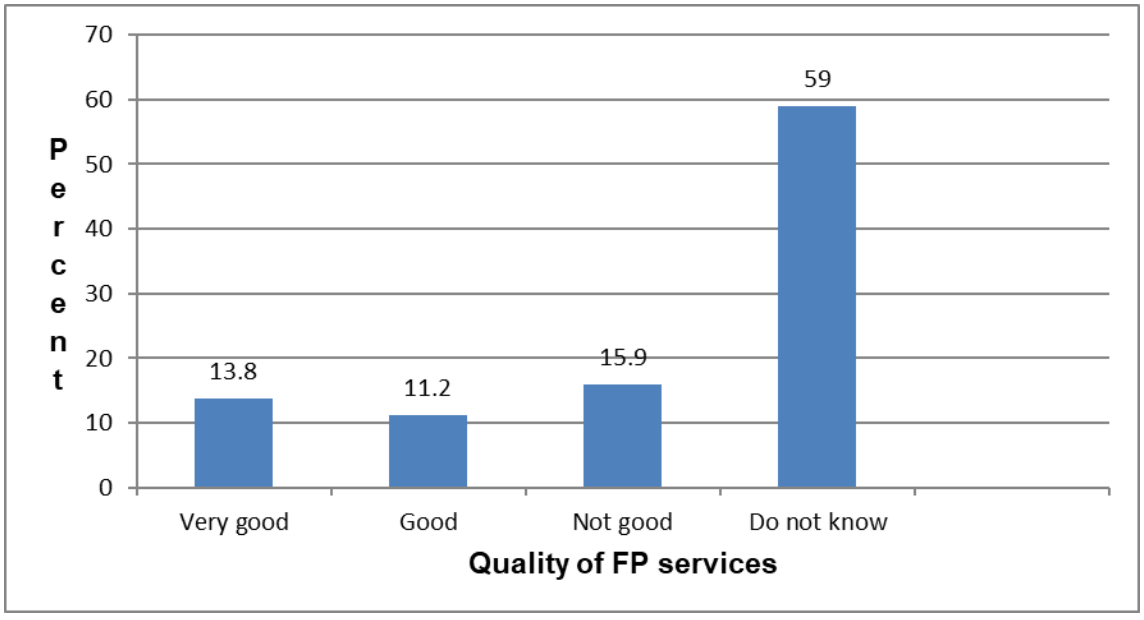

Figure 4.14 Perceptions on the quality of FP services (N=383)

According to the respondents, the quality of the FP services in the health facilities was not good. However, as shown in Figure 4.13, the majority of the respondents (59%; n=226) were not in a position to judge the quality of FP services in their area. This was mainly because of the unavailability and inaccessibility of the service in their area. This was followed by 15.9% (n=61) who were not happy with the service, which the respondents perceived as not being good enough. Agro-pastoral women in the study rated the service quality as very good, 13.8 % (n=53) and good, 11.2% (n=43).

The qualitative section of the result will describe the barriers women faced in using modern contraception in detail.

4.3.1.13 Factors associated with the unmet need for modern contraception

The unmet need for modern contraception is associated with various factors. Several studies have established varied results in relation to the factors that influence the unmet need for modern contraception. Such factors could be socio-economic, demographic and cultural. Table 4.7 portrays factors that were associated with an unmet need for modern contraception in the study area.

Table 4.7 Factors associated with unmet need for modern contraception

Factors for unmet need for modern contraception	Existence of unmet need		Crude OR (95 % CI)	Adjusted OR (95% CI)
	Yes	No		
Age of the respondent				
15-19	5	30	1	1
20-24	17	71	0.696 (0.235-2.059	1.199 (0.358-4.016)
25-29	28	84	0.500 (0.177-1.413)	0.873 (0.252-3.025)
30-34	23	65	0.471 (0.163-1.359)	0.968 (0.250-3.755)
35-39	18	9	0.083 (0.024-0.288)*	0.222 (0.045-1.101)
40-44	15	5	0.056 (0.014-0.222)*	**0.165 (0.028-0.956)***
45-49	6	7	0.194 (0.046-0.824)*	0.379 (0.062-2.321)
Number of living children				
None	1	24	1	1
1-2	17	61	0.150 (0.019-1.186)	0.174 (0.020-1.507)
3-4	26	74	0.119 (0.015-0.921)*	0.153(0.017-1.358)
5-6	24	72	0.125 (0.016-0.974)*	0.218(0.023-2.058)
7-8	22	31	0.059 (0.007-0.467)*	0.142 (0.014-1.432)
9 and above	22	9	0.017 (0.002-0.146)*	**0.054 (0.005-0.628) ***
Type of marriage				
Monogamous	86	238	1	**1**
Polygamous	26	33	0.459 (0.259-0.811)*	0.527(0.263-1.058)
Knowledge of modern contraception methods				
Yes	14	67	1	**1**
No	98	204	0.435 (0.233-0.812)*	**0.431(0.195-0.952)** *
Knowledge of FP service centre				
Yes	55	111	1	1
No	57	160	1.391 (0.893-2.165)	**2.106 (1.214-3.652)***

***** significant at P-value of less than 0.05

- **Age**

According to the study, age was one of the factors that had a significant association with the unmet need for modern contraception. As the age of the women increased, their unmet need for modern contraception decreased. Women aged between 40-44 had lower unmet needs than those whose age was between 15-19 [AOR: 0.165, 95% CI: (0.028-0.956)]. This finding is in line with those of a study conducted in rural Madhya Pradesh (India) whereby the highest unmet need for modern contraception prevailed among women aged 15-24 (Sahasrabuddhe et al 2018:4728). Similar results have also been reported by other researchers. Fagbamigbe et al (2018:7) found that young women had a higher unmet need for modern contraception than older ones in Nigeria. Moreover, it has been reported that the highest prevalence of unmet need was among

women in the age group of 18-24 in a study conducted in Anekal, India (George, Sulekha, Ramachandran, Peters & Kiran 2018:2051). As age increases, women's propensity to have an unmet need for FP decreases, even in rural areas (Nyauchi & Omedi 2014:1006).

On the contrary, there are research studies that have found a positive association between the age of the women and their unmet need for contraception. High unmet need was observed in women in an older age group in Pakistan (Noreen et al 2018:63). Unmet need for modern contraception in the rural areas of Burkina Faso was also higher among older married women than their younger counterparts (Adebowale & Palamuleni 2014:510).

Other studies show that the age of women neither has a positive nor negative association with their unmet need for modern contraception. For example, Bhusal and Bhattarai (2018:3-4) assert that there was no significant association between age and unmet need in a study conducted in Dang District, Nepal.

- **Number of living children**

Among the variables, the number of children a woman had was also considered as a factor that influenced their unmet need for modern contraception. The study revealed a significant association between the women's unmet need and the number of living children they had. Women who had more living children had fewer unmet needs than those with no children [AOR: 0.05, 95% CI: (0.005-0.628)]. This finding is in line with the results of a study conducted in India which highlighted that unmet needs for permanent contraceptive methods among women who had three or more children were lower than among those women with two living children (Singh & Kaur 2019:411).

Some studies were undertaken to establish an association between unmet needs for modern contraception and the number of children a woman has. Studies conducted in rural areas of Burkina Faso (Adebowale & Palamuleni 2014:507) and Bangalore, India (Veena, Holla, Parasuramalu & Balaji 2014:403) found that as the number of living children increased, the unmet need for contraception also increased. It is also noted that women with more children had higher unmet needs for contraception in rural Kenya (Nyauchi & Omedi 2014:1006). However, George et al (2018:2051) have not found any

significant association between the number of children a woman has and her unmet need for modern contraception.

- **Knowledge of modern contraceptive methods**

It was determined that knowledge of contraception had a significant but inverse relationship with unmet needs for modern contraception. As to the study, women who did not know about modern contraception had fewer unmet needs for modern contraception that those who were aware of it [AOR: 0.43, 95%CI: (0.195-0.952)]. A study conducted in Nigeria confirmed that women who knew about modern contraception were 67% more likely to have an unmet need to limit childbearing, relative to women who did not know about modern contraceptive methods (Austin 2015:33). This could happen because the need to use modern contraception arose if the women knew about the various modern contraceptive methods. Knowledge of modern contraception is important to reduce unintended pregnancy (Ali & Abrejo 2017:955).

However, due to various factors, the women were unable to use such methods, hence their need for the same was not met. Studies have confirmed that the likelihood of using modern contraception is high among women who are aware of the various methods (Kassa et al 2014:509), though other studies revealed that knowledge of modern contraception does not necessarily guarantee the use thereof (Beson et al 2018:5; Malalu, Alfred, Too & Chirchir 2014:428).

- **Knowledge of FP service centre**

It is essential to know where a service is rendered for one to be able to seek such a service. This study found knowledge of the FP centre to be associated with unmet needs for modern contraception. Agro-pastoral women who did not know where FP services were being offered had a greater likelihood of unmet needs than those who knew where the services were offered [AOR: 2.1, 95% CI: (1.214-3.652)]. Yet a study conducted in Nepal did not find a significant association between knowledge of FP service centres and unmet needs for contraception (Bhusal & Bhattarai 2018:3-4).

4.3.1.14 Unmet need for modern contraception and unintended pregnancy

Unintended pregnancy is defined as a pregnancy which is either unwanted or mistimed (Teshome et al 2014:94). Unintended pregnancy is one of the major public health concerns worldwide, especially that of developing countries (Feyisso et al 2017:1; Fite et al 2018:3). It has been noted that unintended pregnancy can be among the contributors to population growth which affects the livelihood of the people (Yazdkhasti, Pourreza, Pirak & Abdi 2015:15). The authors further note that the prevention of unintended pregnancy is an effective way of dealing with the socio-economic burden (Yazdkhasti et al 2015:17).

This study hypothesised that there was an association between unmet needs for modern contraception and unintended pregnancy. In order to assess the association, pregnant women at the time of data collection were asked if they became pregnant intentionally.

Table 4 8 Cross-tabulation of unmet need for modern contraception and unintended pregnancy: Chi-Square tests

	Did you want to get pregnant?			
		Yes	**No (unintended pregnancy)**	**Total**
Unmet need for modern contraception	Yes (N)	0	19	19
	% of total	0.0%	18.4%	18.4%
	No (N)	84	0	84
	% of total	81.6%	0.0%	81.6%
Total	N	84	19	103
	% of total	81.6%	18.4%	100.0%

(x^2 = 96.46, df: 1, p-value: < .001)

Among the 103 agro-pastoral pregnant women, 18.4% (n=19) indicated that their pregnancy was unintended. All of the women who faced unintended pregnancy had an unmet need for modern contraception. As can be seen in Table 4.8, the chi-square test also shows a strong association between unmet needs for modern contraception and unintended pregnancy ($\chi 2=96.46$, d=1, $p < 0.001$). Thus, the research hypothesis of the study is accepted. A study in Ganji Woreda, West Wollega Oromia Region (Ethiopia)

also revealed that 82% unintended pregnancies were recorded among women with unmet needs for modern contraception (Teshome et al 2014:93).

4.3.2 Qualitative section

The qualitative research mainly intended to explore and describe the barriers that prevented agro-pastoral women from using modern contraception.

4.3.2.1 Demographic characteristics of participants

A total of 30 agro-pastoral women and 10 FP service providers participated in this phase of the study.

Table 4.9 Agro-pastoral women participants of the qualitative component (N=30)

Age	N	Percentages
15-19	3	10.0
20-24	6	20.0
25-29	6	20.0
30-34	10	33.3
35-39	3	10.0
40-44	2	6.7

The ages of the majority of participants (33.3%, n=10) lay in the range between 30-34. The age categories 20-24 and 25-29 comprised 20% (n=6) of the study participants each. Each of the categories 15-19 and 35-39 consisted of 10% (n=3) of the participants. The age of the remaining 6.7% (n=2) of participants were in the range of 40-44. In regard to the pregnancy status, 26.7% (n=8) were pregnant, 33.3% (n=10) were postpartum, and the remaining 40% (n=12) of participants were not pregnant but fecund at the time of data collection.

In addition to the agro-pastoral women, 10 FP service providers (four males and six females) also participated in the study. Of the 10, four were public health professionals, three were nurses and the remaining three were trained in midwifery.

4.3.2.2 Barriers that hinder agro-pastoral women from using modern contraception

The discussion about the barriers that hinder agro-pastoral women from using modern contraception follows. Initially, the main themes that emerged from the research questions and the coding and reduction of the gathered data through the qualitative research techniques is presented. The discussion also presents the quotations from the transcribed interviews. Having employed the qualitative design, this section further discusses the findings.

Table 4.10 Themes and sub-themes

Theme	Sub-theme/category
Personal barriers	Lack of time
	Lack of knowledge/information about modern contraception
	Lack of knowledge/information about place of family planning service provision
	Fear of perceived side effects
Cultural and community-related barriers	Expectation of community members from women to give birth to many children
	Need to be obedient to husband
	Attaching using modern contraception to promiscuity
	Religious unacceptability (Considering modern contraception as taboo)
	Husband's and relatives opposition
Service provision-related barriers	Availability of FP service and health extension worker
	Accessibility of FP service and health extension worker
	Acceptability of FP service and service providers
	Affordability to get FP service
	Adequacy of facilities such as modern contraception methods and toilet in health centres/posts

The unmet need for modern contraception has become high among agro-pastoral women due to several barriers that prevent them from obtaining modern contraception. The barriers are classified as personal barriers; cultural, religious, community-related barriers; husband/relative-related barriers; and service provision-related barriers. These are discussed next.

4.3.2.2.1 Theme 1: Personal barriers

Agro-pastoral women had their own personal reasons for not using modern contraception. Lack of time, not being aware of modern contraception and fear of perceived side effects were the main barriers/reasons at the individual level preventing women from using modern contraception.

- *Sub-theme 1.1: Lack of time*

The participants in this study raised a lack of time as a barrier that hindered them from seeking modern contraception from health facilities. In developing countries where most of the household activities are shouldered by women, where the economy depends on subsistent agriculture, and in most cases women play an important role, scarcity of time among women is always expected (Kinati & Mulema 2018:6). The scarcity of time constrained women from attending to activities outside their home, which has significant implications on their livelihood, especially in terms of meeting their reproductive responsibilities by seeking modern contraceptive methods. As the women were busy with household activities, they found it difficult to attend health facilities as expressed by participants:

> "I haven't ever visited health facility for modern contraception due to lack of time. I do not have time to go to health facility as I am busy with the housework: taking care of the children and helping my husband" (IIAW-3).

> "I want to use modern contraception so as to space birth, but I could not do so because of lack of time. Nobody can take care of the kids if I go to health facility" (IIAW-21).

The findings in this study are in line with a study conducted in Maharashtra (India)) by Ghule, Raj, Palaye, Dasgupta, Nair, Saggurti, Battala and Balaiah (2015:25), which noted that women were busy with their daily work, and could not avail themselves when FP information and services were given.

- *Sub-themes 1.2 and 1.3: Lack of knowledge/information about modern contraception and place of family planning service provision*

It is important for one to be aware of FP in order to demand it or be in need of it. In the study area, most of the agro-pastoral women did not know anything about modern contraception. Some of the women mentioned that they used breastfeeding in order to space births. A 32-year-old agro-pastoral woman in Kudle *kebele* indicated that she knows nothing about modern contraception; she declared:

> "I do not have any knowledge about contraception whether it has benefit or not" (IIAW-8).

Being unaware of modern contraception constrained women from using it, and they also did not know where FP services were provided. Women who had heard about modern contraception did not know where to get the service because it was difficult to find FP health posts in the nearby areas. A 25-year-old woman in Harta Alebelo District said:

> "As there is no family planning service provider in my area, I do not know where I should go to get the service" (IIAW-30).

This view was shared by FP service providers in the area.

> "Most agro-pastoral women are not aware of the places where modern contraception services that are given" (IISP-2).

The findings of studies conducted in other areas also witness the situation. A study conducted among Muslim women in India reported that because of a lack of knowledge or improper knowledge about particular methods and its sources, the women could not use modern contraceptive methods (Patra & Singh 2015:28).

In addition to the personal reasons that have been explained above, some women had other justifications for why they were not using contraception. One woman aired:

> "I am not interested to use modern contraception and I want to deliver child every year. Because of the illness I experience during period, I could not discharge my responsibilities at home (doing the household activities). Since I know that the pain is natural, I did not visit health facility. I prefer to get pregnant every year to avoid the pain during the period" (IIAW-27).

- *Sub-theme 1.4: Fear of perceived side effects*

The potential side effects of modern contraception were cited as a barrier to its use. The women mentioned that the use of modern contraception subjected them to various health problems, especially related to their reproductive health organs. Infertility, weight gain and damage of the uterus were the major perceived problems/side effects that women mentioned for avoiding modern contraception. One participant highlighted:

> "I heard that people who are using modern contraception make them overweight so that I do not want to use any of them" (IIAW-11).

The perceived side effect in relation to being overweight was also reported in a study conducted in rural Uganda. It was indicated that those who were using modern contraceptives methods experienced unhealthy weight gain or loss (Kabagenyi, Jennings, Reid, Nalwadda, Ntozi & Atuyambe 2014:7). It was also noted that women did not want to use injectables as they felt that it could cause weight gain (Staveteig 2017:16). A woman who participated in this study also said:

> "Modern contraception may bring damage on my uterus. So who will be responsible if I can't give birth again because of it?" (IIAW-13).

It has been indicated, in a study conducted in Malawi, that pills and injectables cause uterine tumours and cervical cancer, respectively, and long-time use of FP was said to lead to stillbirths if users wanted to have more children (C-Change 2012:17). Family health service professionals in the study area also experienced that women did not want to use modern contraception because of the perceived side effects.

> "Women feel that if they use modern contraception, they will not able to give birth to other children" (IISP-1).

The observed fear of becoming infertile was not limited to the study area. Women in other parts of developing countries such as Uganda also had doubts about using modern contraception based on such fear. The participants in a study in rural districts of Uganda believed that modern contraception creates infertility by destroying the ova and also causes cancer (Kabagenyi et al 2016:7).

Agro-pastoral women were very suspicious of modern contraception as they felt that contraceptives were intentionally created to make women of developing countries infertile. This situation has often been faced by health service providers in health centres. A midwife explained:

> "Agro-pastoral women feel that among the injectables (depo-provera) manufactured some are intentionally made to make women sterilise once and for all. They feel that if they are injected with them, they will not able to give birth in the whole of their life. This perception arises as the contraception is made in the developed world where there is a high need of birth control. When it was manufactured, the women feel that, it was made not to let those women give birth again" (IISP-4).

Another midwife stated:

> "The assumption the agro-pastoral women have towards pills and injectables have hindered them not to use modern contraception. Agro-pastoral women feel that injectables prevent them from being pregnant even if they stop using it, and they feel that pill may not help the prevent pregnancy" (IISP-5).

The participant agro-pastoral women were also attaching various illnesses to the use of modern contraception. A public health officer in a health centre explained his experience as follows:

> *"*A woman stopped giving birth due to menopause. She used to take injectables with the permission of her husband. The people in the area felt that she could not pregnant because she was using injectables. Moreover, the women was seriously sick (she could not properly sit and stand up because of problems in her bones) and she finally died. The people felt that the cause of the infertility, disease and death was the injectables" (IISP-5).

A study conducted in Kenya also indicated that female participants mentioned modern contraception as causing either infertility or reducing women's childbearing capacity and increasing birth defects (Ochako et al 2015:5). Another study determined that women refused to take modern contraceptive methods as they perceived pills and injectables to

be a risk to their reproductive morbidity and mortality, hence they preferred to have as many children as they could (Dansereau et al 2017:6).

Women hesitated to use modern contraception as they felt it causes headaches, disturbance of menstruation and loss of appetite (Endriyas et al 2017:4). Women also perceived the use of modern contraception to have an impact on marital relationships as they may no longer be able to please their husbands or maintain their healthy regular sexual activity (Farmer, Berman, Ryan, Habumugisha, Basinga, Nutt, Kamali, Ngizwenayo, Fleur, Niyigena, Ngabo, Farmer & Rich 2015:250).

4.3.2.2.2 Theme 2: Cultural and community-related barriers

- *Sub-theme 2.1: Expectation of community members from women to give birth to many children*

As human beings live in a community, the culture of the people matters in all aspects of the lives of those who belong to that community. Nobody wants to be cast out by doing anything against the culture of the society or anything that is considered taboo. The use of modern contraception is not free from such societal/cultural influence and criticism. Thus, the agro-pastoral women in the study area were constrained by such influences.

In the study area, agro-pastoral women were expected to give birth to as many children as possible. In such contexts, it was not easy for women to use modern contraception. This situation was manifested in various ways. One health professional indicated:

> "If a woman does not give birth one after the other, the relatives of the husband advises him to marry another girl. Thus, the woman is enforced not to use modern contraception" (IISP-4).

Another study confirmed the situation. According to Muanda et al (2017:6), women who participated in their study expressed their concern that their husbands may marry another woman if they failed to give birth. Some women also believed that the purpose of marriage is to bear children, as one participant expressed:

> "Every woman marries to give birth as many children as possible, it is not to use contraception" (IAW-9).

The belief in giving a birth to one child after another was also reported in a study conducted in Guatemala. Women do not use contraception because of the belief that they got married to have as many children as possible, and the community believed that when a woman stops giving birth, she is no longer regarded as a woman (Richardson, Allison, Gesink & Berry 2016:81). Participants of a study in Rwanda believed that larger families are a sign of prestige or protection against unforeseen disasters and child mortality (Farmer et al 2015:251). This situation has proved true in rural districts of Uganda as well. A focus group in one study indicated that in their community, many people believed that marriage was a structure established for women to bear children, thus frequent and as many births as possible were expected of a married woman (Kabagenyi et al 2016:4).

- *Sub-theme 2.2: Need to be obedient to husband*

Cultural influence and societal norms and expectations dictated that women be obedient to their husband's instructions regardless of their will. It was found that a number of women wanted to space births by using modern contraception, however, they did not look for modern contraception in the health facilities. A health officer in a health centre noted:

> "Most of the women in the area are not confident enough and courageous to go to health facilities to request for modern contraception as their husbands are not happy about use of contraception" (IISP-2).

In support, it was also reported that:

> "Though women need to take modern contraception, they hesitate because people in the area take contraception as a taboo. Women are afraid of the community members that if a woman take contraception, the people gossip. Women do not want their names to be mentioned in relation to contraception. Due to this fact, a number of women are taking modern contraception hiding from family members, husband and relatives" (IISP-3).

Richardson et al (2016:81) claim that due to the social pressure to give birth to many children, women are forced to hide if they take contraception. The inability to take contraception openly could prevent women from seeking advice to understand the benefits and side effects of modern contraception (Alvergne, Stevens & Gurmu 2017:10).

- *Sub-theme 2.3: Attaching using modern contraception to promiscuity*

The attitude of people in society regarding the use of modern contraception was also manifested in various ways. For example, the use of condoms was not supported in the community as using condoms was considered a sign of promiscuity. If a husband was using condoms, people felt he was sleeping with other women. One participant mentioned:

> "Men do not use condom as people feel that they are promiscuous" (IISP-3).

Other studies have also discovered similar findings. Women believe that the use of modern contraception encourages prostitution and motivates young women to be promiscuous (Muanda et al 2017:7; Ochako et al 2015:6).

- *Sub-theme 2.4: Religious unacceptability*

As it has been noted in the quantitative section, religion is perceived as a barrier to using modern contraception. The data collected from the individual in-depth interviews (qualitative data) supported this finding. Using modern contraception was considered as taboo.

The participants in the study believed that using modern contraception is against their religious teaching. A participant noted:

> "I believe that Allah manages my life so that I do not want to use any modern contraception" (IIAW-6).

In support, another participant said:

> "I believe that children are gift of Allah and using contraception is forbidden in our religion" (IIAW-12).

The influence of religion on the use of modern contraception is also shared by other studies. It is noted that the use of contraception means killing the innocent unborn child and it is god's responsibility to limit births (Kabagenyi et al 2016:5).

- *Sub-theme 2.*5*: Husband's and relatives opposition*

Opposition from husbands and relatives was among the reasons indicated by the study participants as a factor that hindered them from using modern contraception. In a patriarchal society like Ethiopia, the dominance of men (husband) is not surprising. It is mainly related to the fact that men are generally the breadwinners of the household. Women should thus behave and act according to social norms which set their life standards. Use of FP methods should thus comply with the social norms, hence the majority of the women could not decide for themselves to use modern contraceptives.

It was reported that though agro-pastoral women wanted to prevent pregnancy by using modern contraception, due to opposition from their husband and relatives, they were unable to do so. A midwife in a health centre shared her experience as follows:

> "There was a woman who had three children. All the kids were born with 10 months spacing. The woman was not in position to take care of the kids due to financial and health problems. She wants to take contraception at least to limit birth but her husband and relatives refused. Finally, she decided to take contraception without the knowledge of her husband and relatives. She came to the health centre hiding her and consulted me, and she started taking modern contraception (depo-provera) secretly" (IISP-4).

The husband's attitude towards the use of contraception was also lamented by a nurse:

> "The agro-pastoral women are afraid of their husbands to take modern contraception. They feel that if they take and known by husbands, they will be divorced" (IISP-6).

The agro-pastoral women themselves also expressed their own experience with regard to their husbands' opposition to using modern contraception. In the individual in-depth interviews with agro-pastoral women, the study found that husbands were not allowing their wives to take modern contraceptives. The husbands' opposition regarding the use of modern contraception is also documented in other studies. Endriyas et al (2017:3) found in their study that women hesitated to use modern contraception because of the fact that any sickness that they suffered would be linked to their contraceptive use by their husbands. Their husbands would then refuse to bear related medical costs. This shows how unwilling husbands are to allow their wives to take modern contraception. Other studies have also revealed husbands' opposition as a barrier. A 26-year-old rural woman in a study conducted in Nigeria asserted that as men do not support their wives in taking modern contraception, women are taking it secretly (Okafor et al 2019:18). Other rural women in Chiapas, Mexico, also mentioned that "After my first child was born, I wanted to wait before having another one, and my husband didn't let me" (Dansereau et al 2017:5).

4.3.2.2.3 Theme 3: Service provision-related barriers

In order to let agro-pastoral women use modern contraception to prevent unintended pregnancy, FP service matters. The service provision was evaluated based on the availability, accessibility, acceptability, affordability and adequacy of the services and the required contraceptive methods.

- *Sub-themes 3.1 and 3.2: Availability and accessibility of FP services and health extension workers*

In this study, one of the major obstacles for agro-pastoral women to use modern contraception was related to the availability of health facilities. Though the study area (North Jigjiga District) consisted of 17 centres and 123 *kebele* administrations, there was only one health centre and seven functional health posts. Due to this fact, most of the agro-pastoral women mentioned unavailability of health services as a major barrier to modern contraception during the individual in-depth interviews. One woman indicated:

> "As there is no health post in the kebele, I do not know where I should go to look for modern contraception" (IIAW-15).

Woldemichael, Takian, Sari and Olyaeemanesh (2019:1) similarly argue that the unavailability of health care services is among the major concerns in Ethiopia.

The other problem associated with FP service provision was a lack of health extension workers in the district. Even though health extension workers are responsible for providing outreach services, this was lacking in the study areas. As presented in the quantitative results of the study, 71% (n=272) of the agro-pastoral women were never visited by health extension workers at their homes. In this regard, the head of a health centre indicated:

> "As there was not sufficient number of health extension workers, they could not have time to go to each household to give services" (IISP 6).

Another health service provider noted:

> "As the salary of health extension workers is very low and there is no other remuneration that they get most of the health extension workers leave for other places. Moreover, the instability that occurs in the pastoral areas lead them to move to other places" (IISP 7).

The unavailability of health extension workers in rural areas has also been mentioned in research conducted in rural Ethiopia. It was noted that women in some remote areas of Beneshangul-Gumuz region (Ethiopia) has never seen health extension workers in their village (Ketema & Erulka 2018:31). The findings of the study also reflect the impracticality of the health extension programme in the study area. In order to serve the rural people in the country, it is expected to have at least one health post with two health extension workers that should serve 5000 people in each *kebele* (Gebretsadik et al 2019:2). Moreover, Ethiopia should expand the health extension programme to reach each community in all corners of the country (Caglia, Kearns & Langer 2014:4). The Health Extension Program is defined as a package of basic and essential promotive, preventive and selected high impact curative health services targeting households (MoH

[Ethiopia] 2007:3). It is the main vehicle for bringing key maternal, neonatal and child health interventions to the community (MoH [Ethiopia] 2007:3).

Accessibility of FP services was another concern raised by agro-pastoral women. The participants indicated that they would sometimes hear that there were FP services being offered in health centres and hospitals in the city. However, they could not access such services as they were living in remote areas. Women also found it difficult to get transport to go to health facilities to obtain modern contraception; even those who could afford to pay for transportation. It was reported in another study that women could not get FP services because of a lack of transportation in the southern Kayonza District, Rwanda (Farmer et al 2015:249). It is also noted that a lack of access to services is assumed to be the root cause of unmet needs (Cleland, Harbison & Shah 2014:116).

- *Sub-theme 3.3: Acceptability of FP service and service providers*

The lack of acceptability of modern contraception was among the issues raised by the agro-pastoral women in the study area. Accepting or rejecting contraception depends on the individual and could be influenced by the quality of service, among other things. Most of the agro-pastoral women in the study indicated various factors that discouraged them from attending health facilities in search for modern contraception in particular, and FP service in general.

Lack of privacy was one of the barriers in relation to the acceptability of modern contraception. The agro-pastoral women were expecting to get services in a separate private room so that they felt free to ask for the services they required and explained their worries confidently. However, this was not the case in the study area.

One of the FP service providers indicated:

> "In most health centres and health posts there is no separate place/ room to give FP services so that women hesitate to ask for what they need" (IISP-1)

This condition has proved true with the statistical data obtained from the quantitative component of the research. Among the 165 agro-pastoral women who had experience

with visiting a health facility, about 44% mentioned a lack of privacy as a reason not to return to health facilities (Table 4.6).

The second problem regarding the acceptability of the service was related to the confidence that women had in the service being provided in the health facility and the behaviours of service providers. A study participant said:

> "I do not want to go to health facility because of the bad behaviour of health service providers and I am not happy with the quality of service they are giving" (IIAW-29).

Furthermore, a health officer said:

> "The agro-pastoral women are not confident enough whether they can get standard service by health service providers "(IISP-2).

The third reason was related to the gender of service providers. Culturally, Muslim women do not want their naked bodies to be exposed to men, other than their husbands. However, it was observed that there were male FP service providers in health centres and health posts.

> *"Agro-pastoral women hesitate to look for the services when the service providers are male"* (IISP-4).

In a study conducted in the rural Haramaya District with female Muslim participants, it was explained that they were reluctant to attend health centres where male service providers were working since they did not want to expose their bodies to male service providers (Kifle, Azale, Gelaw & Melsew 2017:9).

- *Sub-theme 3.4: Affordability*

In the provision of any health service, affordability of the service has to be considered. In the study area, participants mentioned the scarcity of money as a reason for not seeking modern contraception. As the health centres and health posts were not located in their nearby villages, participants claimed they were expected to travel long

distances. Moreover, women whose partners and relatives did not allow them to use modern contraception would have to leave their villages and get the service as fast as possible. To do so, they would need to get money for transportation. Therefore, they were restricted from using modern contraception despite their needs for the service. A woman stated:

> "Though I want to go to health facility for contraception, I do not have money for transportation. The health centre is far from where I live" (IIAW-16).

Another agro-pastoral also indicated that:

> "Even if I want to buy modern contraception from private pharmacies, I do not have money to do so" (IIAW-26).

A study conducted in Sudan shared the view among agro-pastoral women that pointed to money as a barrier for women to attain FP services. It has been noted that inadequate financial support became a bottleneck for the women who participated in a study from using modern contraceptive methods (Abdalla & Ahmmed 2017:4).

- *Sub-theme 3.5: Adequacy of facilities such as modern contraception methods and toilet in health centres/posts*

Women expect to get their preferred contraceptive methods when they visit health facilities, yet the study participants indicated that they did not get what they wanted. Participants explained that sometimes they were not able to get the contraceptives they were seeking. Moreover, it was reported that health posts did not have toilets. Thus, women were not able to get adequate services from health facilities. It was also noted by the participants that the health service providers were not qualified enough to give services, and the behaviour of the service providers was not inviting.

> "I do not want to go to health facility because of the experience I had. During my last pregnancy, I observed that there was not adequate facility in the health centre. The behaviour of the health care service providers was not attractive and the health service providers were incompetent" (IIAW-26).

It was also indicated that:

> "The agro-pastroal women are not confident enough whether they can get the service they opt for or not"(IISP 2).

A study conducted in Jimma Zone, Southwest Ethiopia similarly stated that the quality of FP service provision was challenging due to a shortage of emergency contraceptives, medical equipment, and an adequate number of trained service providers (Tafese, Woldie & Megerssa 2013:253).

4.4 OVERVIEW OF RESEARCH FINDINGS

The study aimed to achieve various research objectives. Quantifying the prevalence of unmet needs for modern contraception, investigating the factors associated with unmet needs for modern contraception, and exploring the barriers that hinder women from using modern contraception in the North Jigjiga District of Fafan Zone of Somali Regional State were the objectives addressed in this chapter. Based on the findings of the study, developing strategies to assist in reducing the unmet need for modern contraception was another objective of the study.

The study employed a mixed-method approach and used both quantitative and qualitative data. The quantitative data were collected through an interviewer-administered questionnaire form with 383 study participants. Individual in-depth interviews were used to collect the qualitative data.

According to the findings of the study, the study participants' knowledge about modern contraception was found to be very low. It was determined that only 21.1% (n=81) of study participants knew at least one modern contraceptive method. The remaining 78.9% (n=302) were not aware of modern contraception. The prevalence of modern contraception was also very low in the study area. Among the study participants, only 4.7% (n=18) were using modern contraception. Due to the low prevalence of modern contraception in the study area, the demand for modern contraceptive methods was seldom satisfied. Based on the study's findings, the modern contraceptive needs of only 9.9% (n=7) of the participants who were using any method of contraception was satisfied. Moreover, the study found that the unmet need for modern contraception was

29.2% (n=112). The unmet need for birth spacing constituted 21.1% (n=81), whereas the unmet need for birth limiting was 8.1% (n=31).

There were factors associated with an unmet need for modern contraception. Among the variables that fit multivariate regression, the age of the women, the number of living children, knowledge of modern contraceptive methods and knowledge of FP service centres were found to be associated with women's unmet needs for modern contraception. As the age of women increased, the likelihood of unmet needs decreased. Women who had more living children had fewer unmet needs than those who had few children. With regard to knowledge of modern contraception, the study revealed that women who knew various modern contraceptive methods had higher unmet needs than those who knew nothing about modern contraception. Women who knew about FP service centres also had lower unmet needs than those who were unaware.

The high level of unmet need was reported in the study area because most of the women did not use modern contraception though they needed to prevent pregnancy. It was also found that unmet needs for modern contraception and unintended pregnancy had a strong association.

Several barriers were explored that hindered women from using modern contraception. The barriers that were explored were categorised as personal factors, cultural and community-related factors, religion-related barriers, husband/relative-related barriers and service provision-related barriers.

Lack of time, not being aware of modern contraceptive methods and fear of side effects were among women's personal reasons for not using modern contraception. The study also established cultural and community-related factors that challenged agro-pastoral women's use of modern contraception. The need for many children, the need to be obedient to their husbands and community members, and the thought that the use of modern contraception is a sign of promiscuity prevented women from using modern contraception. Religion was also among the mentioned barriers; women mentioned not taking modern contraceptives because they felt Allah does not allow them to do so.

In addition to the above reasons, there were also service provision-related barriers. The unavailability and inaccessibility of health facilities in the nearby areas of the women were often barriers to their use of modern contraception. It was also noted that health extension workers were not in a position to give the necessary services because of a shortage of health extension workers in the district.

Acceptability of services was an additional challenge for the participants. Lack of privacy and confidentiality drove women from health facilities. It was noted that as the health facilities were far, the women could not afford to pay for transportation. Moreover, they indicated that the inadequacy of medical equipment and the behaviour of health service providers were additional barriers.

4.5 CONCLUSION

Chapter 4 presented the findings of the study. The analysis established that unmet needs for modern contraception are viewed as an important concept in FP research. The unmet need for modern contraception was high in the North Jigjiga District, since the proportion of agro-pastoral women who were using modern contraception was very low. Moreover, it was found that untended pregnancies mainly occurred among women whose modern contraceptive needs were not met. Thus, it is essential to propose appropriate intervention strategies to address the barriers that agro-pastoral women face in using modern contraception.

The next chapter presents the proposed strategies to encourage agro-pastoral women's use of modern contraception in order to reduce their unmet needs.

CHAPTER 5

STRATEGIES TO REDUCE UNMET NEED FOR MODERN CONTRACEPTION

5.1 INTRODUCTION TO THE PROPOSED STRATEGIES

A reduction in women's unmet need for modern contraception is the cornerstone to addressing unintended pregnancy as one of the leading causes of maternal and child morbidity and mortality (Askew, Weinberger, Dasgupta, Darroch, Smith, Stover & Yahnerg 2017:659). The establishment of appropriate strategies is essential to reduce women's unmet need for modern contraception and associated problems. This chapter outlines the developed evidence-based strategies to reduce women's unmet need for modern contraception.

The objectives of the study were to

- determine the prevalence of agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- determine thefactors that influence the agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional State
- explore and describe barriers that hinder agro-pastoral women from using modern contraception in the North Jigjiga District of Somali Regional State
- develop strategies to reduce the unmet need for modern contraception among agro-pastoral women of the North Jigjiga District of Somali Regional State

Based on these objectives, the prevalence of women's unmet need for modern contraception, in line with objective 1 of the study, was discussed in Section 4.3.1.5. The factors influencing unmet needs for modern contraception in line with objective 2 were discussed in Section 4.3.1.13, and the barriers that hindered agro-pastoral women's use of modern contraception, responding to objective 3, were discussed in Section 4.3.2.2. All three objectives were addressed in Chapter 4 of the thesis. The fourth objective, namely developing strategies to reduce this unmet need, is addressed in Chapter 5, hence the researcher is of the view that all objectives have been met.

The term ‘strategy’ is derived from the Greek word *strategos* (Mainardes, Ferreira & Raposo 2014:44), and refers to “an art or science of informed action to achieve a specific vision” (Daniell 2004:xiv). Studies reveal that multiple births remain one of the causes of maternal complications (Mhlanga, Zvinavashe, Gwanzura & Stray-Pedersen 2017:5). In addition, Sapkota, Adhikari, Bajracharya and Sapkota (2016:5) report that multiple pregnancies and multiple births were associated with ill-health and premature ageing among women in the Muslim community in Nepal. Moreover, about 84% of all unintended pregnancies in developing regions occur due to an unmet need for modern contraception (Guttmacher Institute 2017:1). International agreements and human right documents show that “reproductive rights are derived from the basic rights of all individuals and couples to make decisions in their reproductive lives” (Roudi-Fahimi, Monem, Ashford & El-Adawy 2012:2).

Having conducted an inquiry among agro-pastoral women related to this phenomenon, the findings of the study show low levels of modern contraception utilisation among these women, pointing to the need for the development of strategies to reduce this unmet need in this population. Moreover, Packer and Petruney (2018:2) argue that designing strategies to improve the use of modern contraception have to be given priority for marginalised and underserved populations, such as agro-pastoral women.

In providing modern, comprehensive contraceptive services, thus meeting the needs of FP users, the client, provider and health system barriers have to be addressed (Jacobstein et al 2013:s11). Moreover, understanding the factors that influence an unmet need for modern contraception is crucial in developing strategies to prevent unintended pregnancies in particular, and provide FP services in general (Bishwajit et al 2017:2).

Ross and Stover (2013: 203) indicate that there is “no single method that serves the needs of every subgroup in a population”. This calls for context-specific strategies. In the development of the strategy for this study, the researcher employed the five interrelated tasks of strategy formulation by Thompson and Strickland (1992:4). The following figure demonstrates the five steps followed to develop the strategy.

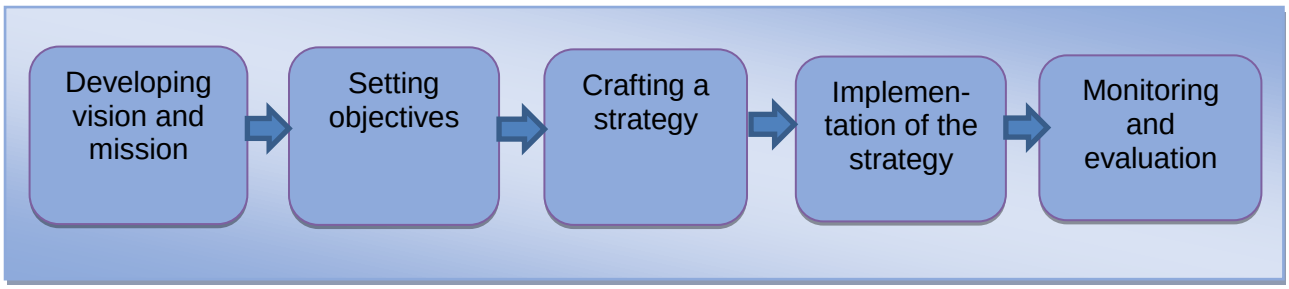

Figure 5.1 Steps of strategy development

(Adapted from Thompson & Strickland 1992:4)

5.2 MAJOR FINDINGS THAT CONTRIBUTED FOR THE DEVELOPMENT OF STRATEGIES

The strategies are proposed based on the findings of the study and specifically the barriers that hindered agro-pastoral women from meeting their modern contraception needs and other factors associated with it. The findings of the study were based on the two theoretical models: Health Belief Model and Primary Health Care Model, and the strategies were developed accordingly.

In regard to HBM, the results of the study took the constructs of the model into considered, as it is reflected in the study. Agro-pastoral women who were using modern contraception did so because of the consequences they felt would face because of giving unplanned birth (perceived severity). As married agro-pastoral women were at the reproductive age, they knew that they could conceive any time (perceived susceptibility). As to the study, though there were agro-pastoral women who were aware of the severity of problems associated with unintended pregnancy and they were susceptible to get pregnant because of not using modern contraception, they were unable to use because of various barriers. The study also revealed that some women were getting family planning information from health extension workers and family planning service providers in the health centers/posts which let them to use modern contraception (cues to action) with all its limitations. Thus, the women could understand the benefits of using modern contraception (perceived benefits). Women who realized the benefits, they were confident enough to use the same (self-efficacy). In spite of this fact, a number of barriers (perceived barriers) hindered women not to use modern contraception as discussed in the result. Moreover, there were factors that either enable them to use or became an obstacle (modifying and enabling factors) not to use modern

contraception. The PHC model was also used in relation to the family planning service provision. The results were discussed in relation to availability, accessibility, acceptability, affordability and adequacy of the service in the study area, which the model is composed of.

The significant findings of the study are summarised as follows.

The prevalence of unmet need for modern contraception in the study area was 29.2% (n=112); 21.1% (n=81) for birth spacing and 8.1% (n=31) for birth limiting. The study also revealed factors that influence the unmet need for modern contraception in the study area. These factors included the age of the agro-pastoral women, number of living children, knowledge of modern contraceptive methods, and access to FP service centres. Moreover, several barriers that hindered agro-pastoral women from using modern contraception were explored. Religious beliefs, fear of perceived side effects, lack of support from their partner and relatives, the expectations of women to give birth to as many children as possible, unavailability and inaccessibility of health facilities and health extension workers, and lack of privacy during the consultation were the major barriers.

5.3 PURPOSE OF THE STRATEGIES

The purpose of developing the strategies is to improve service delivery and reduce the unmet need for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State, Eastern Ethiopia. The more women who use modern contraception, the more the unmet need for this service is expected to decline. This, in turn, reduces unintended pregnancies. The strategies can be used by various offices, ministries and organisations, including the MoH, Ministry of Education, Ministry of Women's, Children and Youth Affair, Somali region health bureau, Fazan zone health bureau, North Jigjiga (Haroris) district health bureau, North Jigjiga (Haroris) district health centre, and health posts in North Jigjiga (Haroris). Moreover, as agro-pastoral communities in Ethiopia share common cultures, the strategies can also be adopted to be used by health professionals working in other agro-pastoral areas of the country.

5.4 VISION

Agro-pastoral women whose needs for modern contraception should be met comprehensively and satisfactorily.

5.5 MISSION

To assist health service providers in offering quality FP (modern contraception) services to agro-pastoral community members, especially women.

5.6 OVERALL GOAL AND OBJECTIVES

5.6.1 Overall goal

The overall goal of the strategies is to reduce agro-pastoral women's unmet need for modern contraception in North Jigjiga District of Somali Regional State, Eastern Ethiopia.

5.6.2 Objectives of the strategies

The strategies are intended to

- guide health service providers in giving standard FP services to agro-pastoral women
- enable agro-pastoral women to make informed decisions in their use of modern contraception
- increase the number of agro-pastoral women who are using modern methods of contraception
- reduce unintended pregnancies among agro-pastoral women through meeting their needs for modern contraceptive methods

5.7 UNDERLYING PRINCIPLES TO THE STRATEGIES

The principles have been outlined based on the framework of Rights and Empowerment Principles for Family Planning. The principles have ten dimensions, namely agency and

autonomy; availability; accessibility; acceptability; quality; empowerment; equity and non-discrimination; informed choice; transparency and accountability; and voice and participation (FP2020 2014). Moreover, the elements of FP that contribute to the quality of the service have also been taken into account. The elements are quality of care, the information given to users, technical competence of service providers, interpersonal relations, follow-up or continuity mechanisms, and the appropriate constellation of services (Bruce 1990:63). The two models, Health Belief Model and Promary Health care Model, were also taken into consideration in the development of the strategies. The principles are presented as follows:

- Agro-pastoral areas have been among the marginalised groups of societies.
- Deciding on the number of children someone wants and birth spacing is every individual's human right.
- Agro-pastoral women have not been receiving the required maternal health services due to location disadvantage.
- Agro-pastoral women should get sufficient information about the benefits and side effects of modern contraception methods and how the methods can be applied.
- Agro-pastoral women should be empowered to make their own decisions.
- Agro-pastoral women should receive alternative modern contraception, giving them the opportunity to choose the method they prefer.
- Agro-pastoral women should be treated with respect and dignity so that they can be motivated to visit health facilities for modern contraception.
- Agro-pastoral women should be followed up with if they continue using FP services.
- Agro-pastoral women should be given FP services in line with their needs and in a way that is convenient for them.
- Issues related to childbirth and taking care of children should not only be the responsibilities of agro-pastoral women, but men also have to play their role.
- Health extension workers should be well trained to have technical competence in providing modern contraceptive services and counselling to agro-pastoral women and men.

- Health extension workers should be effective communicators to create attitudinal changes among the agro-pastoral community members in general, and agro-pastoral women in particular.
- Health extension workers should be fairly distributed across the various centres/*kebeles* of the district in the country.
- The regional health bureau, district health centres and posts have to play a significant role in promoting modern contraception to reduce unintended pregnancies.
- Community and religious leaders should play their own role regarding the need for FP/modern contraception.
- There should be a collaborative effort among various ministries and stakeholders in order to reduce women's unmet need for modern contraception.

The strategies proposed are not mutually exclusive to one another. One strategy can be used to mitigate one or more of the factors considered as barriers. It is also important to note that in order to address a barrier, one or more strategies could be applied.

5.8 STRATEGIES

The specific strategies to reduce agro-pastoral women's unmet need for modern contraception in the North Jigjiga District of Somali Regional Zone, Eastern Ethiopia, are discussed hereunder. The strategies for personal, household and community-related factors are discussed first, followed by strategies for FP service provision-related factors.

5.8.1 Strategies for personal, household and community-related factors

Objectives

- Let agro-pastoral women cogniznat of the benefits, characteristics andmanagement of modern contraception.
- Encourage agro-pastroral men to be involved in family planning.
- Motivate agro-pastoral women to have discussion with their husbands about modern contraception.

- Let agro-pastoral women have timely information about family planning services in the areas of their residences.
- Empower agro-pastoal and bring gender equality in order to let them involve in decision making about the number of children they neeed to have.
- Involve community leaders and religious clerks in the effort of creating awerness about the benfits of modern contraception.
- Expand and strengthen community-based family planning programmes.
- Motivate agro-pastoral women to use modern contraception through incentives.

5.8.1.1 Strategy 1: Awareness creation

Among all strategies, creating awareness about FP is the first option to reduce women's unmet need for modern contraception by encouraging the use of modern contraceptive methods. Both the wife and husband should be aware of the need for FP. It is also important that all community members realise the significance of using modern contraception in order to promote the health of women and children. The welfare of the family is also taken care of through the use of modern contraception as unintended pregnancies, and having many children affect the livelihood of the household. Thus, the district health bureau, health centres and health posts can organise awareness creation schemes depending on the time and place convenient to all community members, especially women. The following points should be clearly presented;

- what FP is
- the benefits of using modern contraception
- the characteristics of each modern contraceptive method
- proper management of perceived side effects of modern contraception
- false rumours and misinformation about modern contraception

Creating awareness can be useful in order to mitigate the fear of perceived side effects of modern contraception, convince husbands and relatives of the need for modern contraception, and address the effects of unintended pregnancies on the mother and children in particular, and the household and community in general.

Awareness creation can be made in various ways.

(a) Behavioural change communication

Behavioural change communication, which is helpful to communicate essential messages to the women and men, is one of the strategies to create demand for FP to reduce women's unmet needs for contraception (MoH [Ethiopia] 2016:14). The MoH [Ethiopia] (2011:30) defines 'behavioural change communication' as a "process of educating, persuading and disseminating information to people to positively influence their behavioural pattern and enable them to take actions that will enhance their reproductive health status". Increasing demand for FP can be achieved by developing tailored communication mechanisms to create behavioural change among people (MoH [Ethiopia] 2016:32).

Behavioural change communication could change the cultured attitude of both men and women in relation to their need for modern contraception in order to either space or limit births. Such communication can be administered at any time in the life of women and men. However, better outcomes could be achieved if given to newly married partners as women in lower age groups have higher unmet needs for modern contraception than older women. Mustafa, Azmat, Hameed, Ali, Ishaque, Hussain, Ahmed and Munroe (2015:8) assert that behaviour communication training has to be given at the early stage of marriage so that partners can plan the desired number of children so they can start using modern contraception at the appropriate time. According to USAID (2018:1), behaviour change communication is a helpful approach to increase the use of FP products and services by addressing various socio-cultural norms, changing people's attitudes, and reducing barriers.

(b) Experience-sharing between users and non-users

Women who have realised the benefits and are using modern contraception can share their experience with those who are unaware. It is especially effective for those women who want to use modern contraception methods but hesitate due to various reasons. It is indicated that encouraging experience-sharing between users and non-users can be useful in the expansion and sustainability of contraceptive use (Alano & Hanson 2018:12). In the experience-sharing, barriers related to the perceived side effects can easily be resolved. Zazo, Dragoti, Karaj and Volle (2011:28) assert that in peer-based experience-sharing, issues related to myths and misconceptions about modern

contraception, the effectiveness of modern methods and limitations of traditional methods can be better discussed.

(c) Counselling

Counselling has been proposed as a strategy to convince agro-pastoral women to use modern contraception to avoid/reduce their unmet needs. Counselling refers to “a confidential relationship between a client and an individual who is trained to listen attentively and who will try to help clients improving things through support and understanding” (Burns & Burns-Lundgren 2015:58). It helps to solve difficulties in various contexts and could be given by any member of a society who has gained respect and trust in the community. Health extension workers or others who are trusted by the community need to counsel couples (both husbands and wives) to let them have the desired family size (Koffi, Weidert, Bitasse, Mensah, Emina, Mensah, Bongiovanni & Prata 2018:326). Counselling services should address issues of cultural stigma around contraceptive use (Packer & Petruney 2018:2). Moreover, it is recommended that during counselling clear messages should be shared about the possible side effects of modern contraception and how to manage them (Mustafa et al 2015:8). Research conducted in Karachi proved that the provision of door-to-door counselling increased use of contraception (Najmi, Ahmed, Halepota, Fatima, Haq, Yaqoob, Latif, Ahmad & Khursheed 2018:88). However, the effectiveness of counselling only increases if it is given by those who are trained in counselling. Stanback, Steiner, Dorflinger, Solo and Cates (2015:353) argue that well-trained health service providers prioritise the effective methods and use accepted ways of counselling so that women can make informed decisions.

It is also essential to promote a positive view of modern contraception among ago-pastoral communities, using any means of awareness creation indicated above since one of the problems in relation to the use of modern contraception was the negative attitude among the agro-pastoral community towards modern contraception. In order to change the attitude, it is important to pay special attention to the advantages of using modern contraception vis-à-vis the limitations. In regions like Somali, where an estimated 2.3 million people require emergency livelihood and food assistance (FAO 2017:1), and where the perinatal mortality rate is highest (50 deaths per 1,000 pregnancies) (CSA [Ethiopia] & ICF 2017:126), it is not recommended that women give

birth to children they cannot afford to raise. Moreover, women should be informed that their health can be maintained if they use modern contraception and give birth after recommended gaps.

5.8.1.2 Strategy 2: Involving men in family planning and avail male contraception methods

Involving men, listening to their concerns and informing them about contraceptive methods can be used as a strategy to reduce women's unmet need for modern contraception among agro-pastoral communities of the study area. FP is not only the concern of women, but men should also take responsibility in this regard. In most African countries, including Ethiopia, issues related to reproduction and childbearing are exclusively addressed by women (Imo, Isiugo-Abanihe & Chikezie 2016:7040). Therefore, most FP is considered the business of women. Because of this fact, men in the study area were not very aware of their roles in regard to FP, so they did not support their wives. In order to mitigate such problems, the need to involve men in FP is unquestionable. Studies conducted in sub-Saharan African countries also are in favour of the suggestion that male involvement in FP can increase the uptake and continuation of contraceptive use (Kabagenyi et al 2014:1; Vouking, Evina & Tadenfok 2014:2). It has also been noted that letting men participate in FP programmes assist in establishing the desired results in terms of modern contraceptive use (Sapkota et al 2016:8). It is, therefore, essential to involve men in all activities related to FP, including counselling, behavioural communication training and experience-sharing.

As FP is the responsibility of both partners, the concerns of men have also to been aired so that they can get appropriate feedback depending on their concern. Men had the wrong perception in relation to modern contraception, according to the findings of this study. To solve such problems, they should have the opportunity to express their concerns. In this regard, Koffi et al (2018:326) argue that addressing challenges related to modern contraception has to start "by listening to men's concerns, misconceptions, and their views of their roles in FP decision making".

It is also a good strategy to let men come together to discuss reproductive health issues. In Niger, this strategy has proved to be effective, and they call it 'husband school'. In the husband school, health professionals offer health information to

husbands, so these husbands are able to search for appropriate solutions to problems (UNFPA 2010:1). It is noted that a remarkable behaviour change was observed among men who attended 'husband school' in regard to reproductive health, including contraception (UNFPA n.d as cited in Packer & Petruney 2018:3).

5.8.1.3 Strategy 3: Encourage discussion between partners (husband and wife)

Women who discussed FP with their partners were using better contraceptive methods than those who did not discuss the topic (Derek, Seme, Anye, Nkfusai & Cumber 2019:6). Husbands could refuse their wives' use of modern contraception for various reasons. As the study revealed, for example, husbands felt that if women use contraceptives, it might cause them to become promiscuous. If there is an open discussion between the partners about the reasons behind the use of modern contraception, husbands can understand and support their wives rather than opposing it. It has thus been recommended that women have to be motivated to discuss FP with their husbands (Shifa & Kondale 2014:32).

5.8.1.4 Strategy 4: Provision of timely information on available family planning services and where to access

According to the findings of this study, one of the barriers that hindered agro-pastoral women from looking for modern contraception was lack of information on where FP services are offered and the type of FP services given in the health facilities. Thus, information on FP services available at health facilities, and where to access the services, should receive special attention.

Information on the available FP services can be disseminated using various media. In most agro-pastoral areas, these days, mobile phones and radio are available. The increase in the use of digital technology creates the potential to motivate women and men to use modern contraception (Packer & Petruney 2018:4). Health extension workers also have the responsibility of giving the information to every household in their respective districts/*kebele*.

5.8.1.5 Strategy 5: Ensuring women empowerment and gender equality

In developing countries where patriarchy is prevalent, the need to empower women and ensure gender equality is essential to let women satisfy their needs, including in relation to their reproductive health (Madiba & Ngwenya 2017:55). Women's low decision-making is mainly caused by their economic dependence on men (Bhutta & Haider 2013:204). Therefore, allowing women to be independent could help them freely decide on their own lives in all spheres of life, including in terms of the use of modern contraception and the number of children they wish to have (Phan 2013:50). Thus, promoting gender equality and women's empowerment can be among the strategies to encourage women's use of modern contraception based on their preferences.

Gender equality refers to an equal distribution of power, getting equal access to various social services, such as health and education, and having equal opportunities in managerial positions and parliament (World Vision International 2008:289). Phan (2013:51) defines 'empowerment' as "the process whereby the powerless gain control over the circumstances of their lives".

Establishing gender equality and empowering agro-pastoral women could let them control their own body and have the power to have a say in the number of children they have. It also helps them use modern contraception whenever they want to space or limit births. Knerr (2012:17) argues that measures related to improving the status of women and satisfying their priority needs in policies and health budgeting are essential. Mukherjee (2016:9) similarly claims that women can be empowered by making them financially independent, creating awareness regarding the contribution women can make in the economy, and giving girls/women access to education.

5.8.1.6 Strategy 6: Involving community leaders and religious clerks to address socio-cultural and religious concerns

In Africa, including Ethiopia, the influence of elders, community and religious leaders is immense (Adedini, Babalola, Ibeawuchi, Omotoso, Akiode & Odeku 2018:512; African Union 2015:35). As the results of this study show, socio-cultural and religious factors hindered agro-pastoral women from using modern contraception. Most often, women were afraid of community members and religious leaders to take contraception though

they needed to space and limit births. In such scenarios, the community and religious leaders play a significant role in persuading women and men to have children based on their desire and economic capabilities. Mustafa et al (2015:8) state that the involvement of community leaders and religious clerks in awareness creation about the need for FP is critical to address socio-cultural and religious barriers. The adoption of contraceptive methods can be easily inhibited or facilitated by religious leaders (Adedini et al 2018:500). Adedini et al (2018:500) further note that women who received FP messages from religious leaders were using contraception more frequently than those who did not receive such messages from their religious leaders.

5.8.1.7 Strategy 7: Community-based family planning strategies

Expanding community-based FP is proposed as a strategy to mitigate challenges in relation to the use of modern contraception. Community-based FP refers to the ways in which FP information and contraceptive methods are available in the areas where people are living (MEASURE Evaluation [s.a.]). Expanding and strengthening community-based FP programmes has to be a strategy to give women, especially those with unmet needs, reliable information and quality services (Adebowale & Palamuleni 2014:551). In rural areas where people are living in a scattered way, the presence of FP services nearby enables most women to use it. It has also been indicated that in the provision of FP services that reach a large number of women, community-based FP plays a significant role (Cleland et al 2014:116). Mutumba, Wekesa and Stephenson (2018:7) argue that community-wide FP programmes are ideal in order to address constraints in relation to socio-cultural and gendered norms that inhibit women and men from using modern contraceptive methods.

5.8.1.8 Strategy 8: Providing incentives

Healthy behaviour could be promoted through incentives (Giles, Robalino, McColl, Sniehotta & Adams 2014:1). The provision of incentives can serve as a strategy to motivate agro-pastoral women's use of modern contraception, suppress early marriage, and enforce existing rules and regulations. Bellows, Askew and Bellows (2015:146) argue that incentives based on performance can be a viable strategy to enhance the use of FP.

As agro-pastoral women often hesitate to use modern contraception, incentivising them can increase the prevalence. The incentives can be given in the form of money or kind. Experiences in Ghana, India and Thailand show that giving clients incentives increased the rate of acceptance of FP services (Heila et al 2012:4-6). Incentives can also be used to motivate FP service providers.

5.8.2 Strategies for family planning service provision-related factors

Objectives

- Let the agro-pastoral women get standard family planning services in their own villages.
- Ensure privacy of the agro-pastoral women when they are getting family planning service.
- Assist the agro-pastoral women in gettiing modern contraceptions they need.
- Let the agro-pastoral women served by female family planning service providers.
- Improve the competency of family pallning services providers.
- Provide integrated health services.

5.8.2.1 Strategy 1: Building health posts near the villages and equip them with the necessary facilities and FP service providers

In marginalised areas, like the pastoral and agro-pastoral communities of Somali Regional State, access to health services in general, and FP in particular, is very difficult. As determined, in the areas where this study was conducted, there was a small number of health service facilities and providers. It is, therefore, essential to

- build health posts in/near each village
- use the federal allocated budget effectively and efficiently
- look for funds from other organisations to expand FP health centres
- train qualified and competent health extension workers
- equip the health centres and posts with all modern contraception methods
- assign a sufficient number of health extension workers to each health facility

Some studies have determined that women need to attain family services far from their homes. Sapkota et al (2016:7), for example, argue that as women do not want others to see them acquiring contraceptives, they prefer to get FP services far from their homes. However, this finding only works if the community lacks awareness in regard to the need for modern contraception. Thus, it is a wise strategy to make community members aware of the significance of FP, rather than forcing women to go vast distances to obtain the services they require.

5.8.2.2 Strategy 2: Preparing separate rooms so that women get family planning advises and services they look for freely

Ensuring privacy is among the requirements in giving health service (MoH [Ethiopia] 2016:18). Clients have to freely express their views and get the service they look for without disturbance. Agro-pastoral women in the study area hesitated to go to health facilities to look for modern contraception because they felt that their 'secret' would be exposed to others. Thus, it is important to arrange the facility in a way that the privacy of the clients is respected. Misnaniarti and Ayuningtyas (2016:1683) agree that preparing separate rooms for FP is one way of assuring the privacy of clients.

5.8.2.3 Strategy 3: Expand access and option of modern contraception methods

According to this study, one of the barriers that hindered agro-pastoral women from using modern contraception was their lack of access to them. Letting agro-pastoral women get access to modern contraception at their homes or near their village is an effective strategy to motivate them. It has been indicated that among Muslim communities, the use of FP is highly influenced by accessibility to services (Sapkota et al 2016:5). Wulifan, Jahn, Hien, Ilboudo, Meda, Robyn, Hamadou, Haidara and Allegri (2017:9) assert that an unmet need for modern contraception could be resolved by giving women access to various FP methods. It is also argued that expanding the coverage of FP, along with quality service can reduce unmet needs for contraception (Roudi-Fahimi et al 2012:6). Sapkota et al (2016:6) claim that the 'door-to-door approach' is an effective strategy to improve the use of FP.

The needs of women are also not expected to be similar. Therefore, it is essential to give women modern contraception options to choose from so that anybody can use based on their needs. As women have to be provided with contraceptive options and FP services, there is a need to expand the services and avail the methods needed (Nieto-Andrade, Fidel, Simmons, Sievers, Fedorova, Bell, Weidert & Prata 2017:87). The argument has also been supported by Khan et al (2018:168), claiming that all FP methods have to be available to assist women in choosing and utilising based on their preferences. In line with this, it has been noted that the availability of a wide range of contraceptive methods also gives women an opportunity to choose, depending on their need (Goldberg, Wood, Johnson, Mead, Beeson, Lewis & Rosenbaum 2015:207; Packer & Petruney 2018:2). Knerr (2012:16) states that FP programmes will be successful if the contraceptive supplies are adequately presented, available in the appropriate places and affordable. It is, therefore, fundamental to avail modern contraceptive methods in the health centres/posts. In addition to expanding access to modern contraception, availing them free of charge can be an alternative strategy to encourage women's use of modern contraception.

5.8.2.4 Strategy 4: Assigning female family planning service providers

Based on the findings of the study and the reviewed literature, agro-pastoral women preferred to discuss FP issues with female health extension workers and get assisted by them. Thus, training/employing as many female health extension workers as possible to give FP services can be a viable strategy. Mustafa et al (2015:7) also support the need for qualified female FP service providers at health facilities.

5.8.2.5 Strategy 5: On-job training to health extension workers and improved living conditions of health extension workers to enhance the quality of care

One of the problems in the provision of FP services was that the health service providers were incompetent to give the service needed, based on the findings of this study. Poor quality of service could be among the reasons that hinder women from using or discontinuing modern contraception use. Therefore, the following suggestions can assist in attaining qualified and competent FP service providers:

- Employ graduates who are knowledgeable and skilled in FP, who have good conduct and respect clients.
- Give on-the-job training to upgrade the competency of health service providers.
- Design monitoring and evaluation mechanisms to follow the performance of health service providers.
- Design incentive structures to remunerate health extension workers.

Clark and RamaRao (2017:1-2) also claim that offering up to date training to those who give FP services and counselling is a good strategy to ensure appropriate services and reduce women's unmet need for contraception. Health workers who are giving FP services have to be endowed with contraceptive clinical and counselling skills so that clients are receiving standard services (MoH [Ethiopia] 2011:28).

It is also a wise strategy to improve the living and working condition of health extension workers. According to the findings of this study, health extension workers left their posts because of a lack of incentives and unattractive working conditions. Thus, it is crucial to create a conducive working atmosphere in the health facilities in particular, and agro-pastoral areas in general. District health offices and health facilities should be equipped with the requires supplies, and improving the living condition of health extension workers has to be taken into consideration in order to provide standard FP services (Assefa, Gelaw, Hill, Taye & Damme 2019:9).

5.8.2.6 Strategy 6: Integrating health services (Integrated service delivery model)

Integrating services in a central location are among the strategies to be implemented to meet modern contraception needs among agro-pastoral women. In areas where women may not go for FP services, integrating it with other services is of paramount importance. It is reported that FP services can be integrated with PHC (Goldberg et al 2015:205). For example, Packer and Petruney (2018:62) note that giving FP services to postpartum women through infant immunisation programmes is one of FP practices identified to be effective by a group of international experts.

5.8.3 Strategies to be considered by policymakers, federal government officials and non-government organisations

Objectives

- Inform ministry offices and other stakeholders the need for coordination among them to improve family planning service provision.
- Show the need for political and financial commitments to improve family planning service provision.

5.8.3.1 Strategy 1: Coordination among ministry offices and other stakeholders

FP is not something that is left to some groups or offices. It requires a coordinated effort to ensure the health of mothers and children in particular, and the welfare of the family in general. Improving FP services can also be taken as a base for most targets in the SDGs (Dockalova et al 2016:1). As FP is one way of controlling population growth in the economy of a country, various government offices should work in collaboration to promote modern contraceptive use. For example, the MoH, Ministry of Education, Ministry of Finance and Economic Development, Ministry of Women's, Children and Youth Affair, to mention a few, all have to work together. Non-government organisations should also participate in educating, informing and mobilising funds to support the efforts of government offices. Roudi-Fahimi et al (2012:6) assert that public and private health sectors should collaborate so that FP commodities and services could be available and accessible. It is also crucial to encourage non-government organisations to focus on issue of FP in marginalised areas, such as pastoral and agro-pastoral communities.

5.8.3.2 Strategy 2: Political and financial commitments

The commitment of stakeholders matters in reducing unintended pregnancy through the use of modern contraception. Government offices should commit themselves to expanding FP services. They should design appropriate policies that encourage people, especially marginalised agro-pastoral women, to use FP services. To do so, it is also important to allocate a sufficient budget to provide the service without any problem.

5.8.4 Implementation of the strategy

As the study was conducted in the North Jigjiga District of Fafan Zone of Somali Regional State, the primary stakeholders in FP are the health bureaus of the region, zone and district. First, the developed strategies will be given to the Somali regional health bureau. A presentation will also be made to the officials of the health bureau. The FP experts of the bureau will go through the strategies and give their feedbacks. After having incorporated the feedback, the document will be sent to the zone and district health bureaus. A workshop will be organised to have discussions with FP service providers at health centres and posts of North Jigjiga District. In the workshop, the strategies will be presented, and a thorough discussion will be conducted. Once the FP service providers are familiar with the strategies, they will apply these in their daily activities. Moreover, the heads of the health bureaus are expected to have discussions with the concerned government and non-government stakeholders on the ways of expanding FP services and training competent health extension workers to reach each village of the region.

5.8.5 Monitoring and evaluation

Having strategies, by itself, may not create the desired changes in reducing unmet needs for modern contraception. It is essential to have monitoring and evaluation mechanisms in place in order to assess the proper implementation of the strategies. Thus, the following leading indicators can be used to monitor and evaluate the progress of modern contraceptive use and the reduction of unmet needs and unintended pregnancies:

- Number of men and women who are aware of the benefit of using modern contraception, birth spacing and the effect of unintended pregnancy.
- Involvement of men in FP discussions and practices.
- Number of couples having discussions about FP issues.
- Proportion of agro-pastoral women who can freely decide to use modern contraception.
- Availability of information on FP centres and services.
- Engagement of religious and community leaders in FP counselling.

- Performance of community-based FP in terms of sharing FP messages and ensuring the availability of modern contraception methods.
- Incentive mechanisms to motivate agro-pastoral women's use of modern contraception and the FP service providers, and how far the incentive mechanisms are effective.
- Privacy at health facilities.
- Availability and accessibility of modern contraception methods, including male contraception.
- Frequency, duration and depth of on-the-job training to FP service providers.
- The integration of services in health centres and posts.
- The coordination of various offices at country, regional, zone and district level.
- The amount of money allotted for FP services (modern contraception) at regional, zone and district level.
- Proportion of women who use modern contraception, women whose need for modern contraception has been met, and women who experience unintended pregnancies.

5.9 CONCLUSION

In this chapter, various strategies that could be applied to reduce women's unmet need for modern contraception and unintended pregnancy were proposed by promoting the use of modern contraception. The strategies were proposed based on the findings of the study and the reviewed literature. Thus, if the strategies can be used effectively, the unmet need for modern contraception among the agro-pastoral women can be reduced.

Conclusions, recommendations, contributions and limitations of the study are presented in the next chapter.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter presents the overall conclusions of the study drawn from the findings. The focus of the study was to develop strategies to reduce agro-pastoral women's unmet need for modern contraceptive methods. The chapter further proposes recommendations to reduce this unmet need for modern contraception. The strengths and contributions of the study are outlined, and possible areas of future research in relation to women's unmet need for modern contraception and the limitations of the study are also part of this chapter.

Women with an unmet need for modern contraception constitute 84% of those who experienced unwanted pregnancies in developing countries (Ferreira & Souza 2018:691). Of these, 74% did not use any contraception, while 10% used traditional methods (Ferreira & Souza 2018:691). This shows how women's unmet need for modern contraception has been a pressing problem in developing countries.

This study aimed to examine the prevalence of unmet needs for modern contraception among agro-pastoral women in the North Jigjiga District of Somali Regional State. Other objectives included determining factors associated with their unmet needs for modern contraception, and exploring the barriers that hindered agro-pastoral women from using modern contraception. Moreover, strategies were developed to meet agro-pastoral women's needs for modern contraception; reducing their unmet need was the ultimate goal of the study. Thus, all the objectives of the study have been achieved.

6.2 RESEARCH DESIGN AND METHODS

The research design refers to a 'blueprint' for research that focuses on the logical structure of the research and identifies how research participants are grouped and when data are to be collected (Rovai, Baker & Ponton 2014:49). This study employed a mixed-methods design. Both quantitative and qualitative data were integrated to

establish a complete and comprehensive picture of the study. The quantitative method was used to quantify the prevalence of women's unmet need for modern contraception and investigate the factors associated with it. On the other hand, the qualitative method was used to determine in-depth responses in relation to the barriers and reasons for women not using modern contraception.

The data for the study were collected from agro-pastoral women of 11 *kebele* of the North Jigjiga District and the family service providers at the regional, zone, district and *kebele* level. The agro-pastoral women were selected randomly, whereas purposive sampling was used to select FP service providers. The sample size for the quantitative data was determined using a single proportion formula, whereas the data for the qualitative component were collected until saturation occurred (no additional new data emerged).

The data were gathered using various methods. The quantitative data were collected using a questionnaire (interview schedule), and individual in-depth interviewing was employed to collect the qualitative data. A descriptive statistics and multivariate logistic regression model were used to analyse the quantitative data. The qualitative data were analysed thematically. The validity, reliability and trustworthiness of the study were also ensured. Validity was ensured mainly through the use of data collection tools that were validated through the literature review and consultations with experts in FP. The reliability of the tool was ensured by the researcher conducting pilot testing of the tool and collecting data from respondents not included in the main sample. The researcher further ensured trustworthiness by explaining the objectives of the research to motivate respondents and participants to give genuine responses, and reported every step of the research process.

6.3 SUMMARY OF FINDINGS

The study revealed that agro-pastoral women were subjected to unintended pregnancy as a result of their unmet contraceptive needs. This was in spite of the fact that of the 383 study respondents, 21.1% (n=81) were aware of modern contraceptive methods, yet only 4.7% (n=18) used such methods; 4.4% (n= 17) and 0.3% (n= 1) for spacing and limiting births, respectively. The study also revealed that the prevalence of unmet

needs for modern contraception was 29.2% (n=112). Unmet needs for birth spacing constituted 21.1% (n=81), whereas the unmet needs for birth limiting was 8.1% (n=31).

The study concluded that women's unmet need for modern contraception has a strong association with unintended pregnancy. Among the 383 respondents, 103 were pregnant at the time of data collection. Of these pregnant women (n=103), 18.4% (n=19) indicated that their pregnancy was unintended. These women were among those agro-pastoral women whose need for modern contraception was not met.

The multivariate logistic regression analysis result showed that age, number of living children, knowledge of modern contraceptive methods, and knowledge of FP service centres were associated with the unmet need for modern contraception. As the age of the women increased, their unmet need for modern contraception decreased. Women who had more living children had less unmet needs than those with fewer children. Women who did not know about modern contraception also had less unmet needs for modern contraception than those who were aware of it. Agro-pastoral women who did not know where FP services were rendered had a greater likelihood of having unmet needs than those who knew where the services were provided.

Agro-pastoral women were challenged by various factors that operated as barriers to using modern contraception. Lack of time and money, lack of knowledge about modern contraception, and fear of perceived side effects were the major individual-level barriers. There were also cultural and community-related factors, such as a need for many children, which hindered agro-pastoral women from using modern contraception. Moreover, the study disclosed that religious unacceptability and husband's and relatives' opposition were barriers. The quality of FP service provision in terms of competence and behaviour of health service providers, unavailability and inaccessibility of FP services, lack of privacy and inadequacy of facilities were also indicated as barriers.

6.4 RECOMMENDATIONS TO REDUCE UNMET NEED FOR MODERN CONTRACEPTION

6.4.1 Recommendations for family service providers at hospitals, health centres, and health posts level

Quality of health service and the behaviour of health service providers were among the problems indicated by agro-pastoralist women that hindered them from using modern contraception methods. The women have to be attended by competent and qualified health service providers. Therefore, the following are expected from FP service providers at hospital, health centre and health post levels.

- Receive and entertain clients (mostly agro-pastoral women) in a way that makes them feel at ease to request FP services. This can be done if the health service provider's approach to women is attractive.
- FP health providers should have good communication skills. According to this study, the agro-pastoral women hesitated to go to health facilities for FP because the way service providers communicate with clients was not pleasant enough. Therefore, FP health service providers are expected to improve their communication and counselling skills so that women are motivated to attend health facilities.
- Health service providers at every health facility need to provide quality service and have good conduct. If women are satisfied with the service they receive, they will be encouraged to visit health facilities to acquire modern contraception. Therefore, it is important that the FP health service providers should update themselves to provide quality and standard services, and they should exhibit appropriate professional behaviour.
- Confidentiality is key to health care service delivery. Health service providers should keep the medical history of their clients confidential. The study revealed that some women visited health facilities while hiding their use of modern contraception from others. Therefore, clients should feel that their health matters are confidential.
- Organising awareness creation sessions at health centres or posts, which will afford both agro-pastoral women and men an opportunity to realise the

importance of modern contraception to space or limit births, is of utmost importance.

- Home visits by health extension workers are also essential. Agro-pastoral women may not have time to visit health facilities for FP advice; thus, home visits from health extension workers can give them the opportunity to be aware of the need for modern contraception and the effect of unintended pregnancy.

6.4.2 Recommendations for health service managers at regional and zone level

- The study found that agro-pastoral women were not using modern contraception due to the unavailability of health extension workers in their respective villages. If sufficient health service providers were trained and available in each health post, such problems could be mitigated. Therefore, the regional health bureau should train as many health service providers/health extension workers as possible.
- Producing many graduates in health sciences cannot be the only solution to promoting the use of modern contraception. It is also crucial to consider the quality of the professionals to be employed. Unqualified service providers do not help; rather, they could be a factor for women not to show up in health facilities at all. Therefore, the regional and zone health bureaus should critically ensure the recruitment criteria of the health professionals to be employed to serve in the health facilities. Moreover, on-the-job training should be offered to those who are working to upgrade their competencies.
- Health service providers, especially health extension workers, were not easily found in health posts and centres, based on the findings of this study. This was mainly because of the location disadvantage and lack of incentives and remunerations. Thus, the regional/zone bureau should design mechanisms for improving the working condition of the health facilities and incentivise health service providers.
- The effectiveness and efficiency of any performance can be assessed if there is monitoring and evaluation mechanisms. It was observed in the study area that there was no genuine mechanism of monitoring and evaluating the performance of the health service provides. This resulted in the poor performance of the health sector, especially in relation to FP service provision. Therefore, it is recommended to have monitoring and evaluation mechanisms at each level (district, zone and region).

- Record keeping is one of the important activities of any office. However, it was observed in the regional offices that records, such as the population of each *kebele,* were not well documented. Therefore, improving the record-keeping systems of the various offices of the region is expected. It is also important to have good records of the clients and other essential data.
- It is essential to equip health centres and health posts with required facilities so that agro-pastoral women feel they can get the service they need, including modern contraception. The regional and zone health bureaus should do their best in this regard.
- Allotting a reasonable amount of money to assess/research the FP situation in the region is of great importance. One way of knowing the current reality of the region in relation to FP is by conducting research. Therefore, the regional bureau has to allot a sufficient budget to conduct research.

6.4.3 Recommendations for community and religious leaders

- Organising regular FP awareness meetings is recommended. Regular meetings should create awareness and clarify misconceptions about modern contraception among the community members. Agro-pastoral women should come together to discuss issues related to the need for FP. Health service providers, community or religious leaders can pass messages about the importance of modern contraception along to ensure the health of women, and to raise healthy children.
- Most often, pastoral and agro-pastoral communities trust community and religious leaders more than other groups. Therefore, it is wise to use these figures to motivate the community members, especially women, to limit births based on their economic capabilities and the health conditions of the women. It is also crucial to address the myths and misconceptions about modern contraception.

6.4.4 Recommendations for government officials and policymakers

- An incentive for health service providers, who work in a harsh environment like pastoral and agro-pastoral areas of Somali Regional State, is to increase their salary and give them a reasonable allowance. To this end, the government

should work hard to improve the salary and incentive mechanisms of health professionals working in such areas.

- Based on the findings of this study, it is also recommended to design appropriate policies and interventions to empower women, particularly women living in rural and pastoral/agro-pastoral areas. Creating conducive environments that allow them to engage in income-earning activities mitigate their need for cash. Therefore, they do not suffer because of a lack of money for transportation to seek FP services.

6.5 LIMITATIONS OF THE STUDY

The data for this study were collected from agro-pastoral women in the study area. Agro-pastoral men were not included in the study. The study did not involve religious leaders whose views might strengthen findings related to barriers that hinder agro-pastoral women from using modern contraception. The findings of the study regarding agro-pastoral women were based on the views of women in the area of study and may not be applicable to women in other regions of the country. Moreover, as the study employed a cross-sectional research design, it did not show the temporal relationship between the unmet need for modern contraception and factors influencing it.

6.6 RECOMMENDATIONS FOR FUTURE RESEARCH

Having assessed the prevalence of modern contraception and unmet need for modern contraception, and established factors influencing the unmet need among agro-pastoral women in North Jigjiga District of Somali Regional State, the researcher recommends the following regarding future research studies:

- Similar studies should be conducted with larger sample sizes to increase coverage and enable the generalisability of the study findings.
- Research offers input for any programmes in terms of decision-making. There have to be continuous FP studies since there are changes in regard to knowledge, attitude and practice of modern contraception among pastoral and agro-pastoral communities. Therefore, timely study is needed to understand contemporary realities.

- Studies that involve both men and women to give a full picture of unmet needs from both genders are required.

6.7 STRENGTHS AND CONTRIBUTION OF THE STUDY

6.7.1 Strengths of the study in relation to the development of strategies

The study proposes strategies to reduce women's unmet need for modern contraception. As the strategies have been proposed based on the exiting reality of the study area, it could assist health service providers in the region to motivate agro-pastoral community members, especially women, to change their attitudes towards modern contraception so that unintended pregnancies are reduced. In an area where women cannot get health services in nearby villages, it is easy to understand what would happen if a woman faced pregnancy complications. The agro-pastoral areas are also known for their instability and food insecurity. Thus, birth limiting/spacing births can help the women to carefully raise the children that they have.

6.7.2 Strengths of the study in contributing to advocacy and awareness creation among the community members and schools

FP is an issue that should be known by any member of the agro-pastoral community. This research will inform the community about the base reality in terms of modern contraception. Elementary and high schools students could also find it important so they can prevent unintended pregnancies when they get married. As to the study, most of the girls in the area were victims of early marriage. Therefore, if the girls are aware of the need for modern contraception, the effect of unintended pregnancies and giving birth at early ages, they can take care of themselves.

6.7.3 Strengths of the study in serving as a springboard for future family planning studies

The study adds essential findings to the existing body of knowledge in relation to the prevalence of women's unmet need for modern contraception and the barriers that hinder women from using modern contraception in agro-pastoral communities in the

North Jigjiga District. The findings of the research can be a starting point for future studies on FP in general, and modern contraception in particular.

6.7.4 Strength of the study concerning a contribution to policy inputs

The study gives a clear picture related to the prevalence of modern contraception and women's unmet need for modern contraception. Therefore, the present policies and strategies do not address the comprehensive contraceptive needs of women and will not contribute to reducing the unmet needs for FP in the study area. This study will have reached its goal if the findings shed light on the high prevalence of women's unmet FP needs in the study area, and accordingly caution policymakers on the need to design appropriate and focused interventions that address unintended or unplanned pregnancies.

6.8 CONCLUDING REMARKS

The purpose of this study was to develop strategies to reduce the unmet need for modern contraception among agro-pastoral women in North Jigjiga District of Somali Regional State, Eastern Ethiopia to create a better quality of their life for the women and their families.

As the study showed, the unmet need for contraception was prevalent in the North Jigjiga District of Somali Regional State. Because the agro-pastoral women were unable to meet their modern contraceptive needs, they were exposed to unintended pregnancies. Therefore, the regional, zone and district health bureaus should devote themselves to giving agro-pastoral women the resources to meet their modern contraceptive needs. The insights arrived at in this study will hopefully alert the government of Ethiopia to give special attention to the disadvantaged section of the society that does not always gain access to FP services in particular, and health services in general.

The final approved version of the thesis will be given to the MoH of Ethiopia, and the health bureaus of Somali region, Fafan Zone and North Jigjiga District. Moreover, articles will be extracted from the thesis and published to reach the broader scientific community.

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ANNEXURES

ANNEXURE A: ETHICAL CLEARANCE CERTIFICATE FROM THE DEPARTMENT OF HEALTH STUDIES, UNISA

UNISA university of south africa

RESEARCH ETHICS COMMITTEE: DEPARTMENT OF HEALTH STUDIES
REC-012714-039 (NHERC)

11 October 2017

Dear Dereje Kifle Moges

Decision: Ethics Approval

HSHDC/725/2017

Dereje Kifle Moges
Student 55764444

Supervisor: Prof LV Monareng
Qualification: D Litt et Phil
Joint Supervisor: -

Name: Dereje Kifle Moges

Proposal: Development of strategy on the unmet need for modern contraception among Agro-Pastoral women in Ethiopia

Qualification: **DPCHS04**

Thank you for the application for research ethics approval from the Research Ethics Committee: Department of Health Studies, for the above mentioned research. Final approval is granted from 11 October 2017 to 11 October 2022.

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Research Ethics Committee: Department of Health Studies on 6 September 2017.

The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*

2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Research Ethics Review Committee, Department of Health Studies. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*

RECEIVED
2017 -10- 24
Executive Dean
College of Human Sciences

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

4) *[Stipulate any reporting requirements if applicable].*

Note:
The reference numbers [top middle and right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Research Ethics Committee: Department of Health Studies.

Kind regards,

Prof JE Maritz
CHAIRPERSON
maritje@unisa.ac.za

Prof MM Moleki
ACADEMIC CHAIRPERSON
molekmm@unisa.ac.za

Prof A Philipps
DEAN COLLEGE OF HUMAN SCIENCES

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ANNEXURE B: SUPPORT LETTER FROM UNISA REGIONAL OFFICE TO SOMALI REGION HEALTH BUREAU

UNISA university of south africa

16 JULY, 2018

UNISA-ET/KA/ST/29/16-07-18

Ethiopia Somali Regional Health Bureau

Jigjiga

Dear Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to confirm that Mr. Dereje Kifle Moges (student number 55764444) is a doctoral student in the Department of Health Studies at UNISA. Currently, he is at the stage of data collection on his PhD research entitled "***Development of strategies on the unmet need for modern contraception among agro-pastoral women in Eastern Ethiopia***".

This is therefore to kindly request you to assist the student in any way that you can. Attached, please find the ethical clearance that he has secured from the Department of Health Studies.We would like to thank you in advance for all the assistance that you will provide to the student.

Sincerely,

UNISA REGIONAL LEARNING CENTRE
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL +25 41
+25 78
FAX +25
MOBILE +251

Dr. Tsige GebreMeskel Aberra

Deputy Director – Academic and ICT Support

University of South Africa
Regional Learning Center
P.O. Box: 13836, Addis Ababa, Ethiopia
Telephone: +251 11 435 2244 / +251 11 435 0078
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Mobile: +251 912 19 1483
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ANNEXURE C: SOMALI REGIONAL HEALTH BUREAU APPROVAL LETTER WRITTEN TO CONCERNED ZONE AND DISTRICT

DAWLADA DEEGAANKA SOOMAALIDA
XAFIISKA CAAFIMAADKA

SOMALI REGIONAL STATE
HEALTH BUREAU

ሶማሌ ክልላዊ መንግስት
ጤና ቢሮ

Sum/ቁጥር/Ref.No SRHB-18-5879
Tar/Date/ቀ: 25/03/2011

Ku:Xafiiska Mamulka Gobolka fafan iyo sitti
Og:Xafiiska Mamulka Degmoyinka gobolada kor kuxusan
Og:Xafiiska Cafimadka Degmoyinka gobolada kor kuxusan

UJeedo:Gacansiin

Sida lawada ogsonyahay wuxu xafiiska cafimadka ee DDS oo kashanaya xafiiska cafaimadka ee her federal u dadal dher ugu jiraan sidii lo adkayn laha korna loguqadilaha isticmalka qorshaynta qoyska

Sidaa darteed waxa idin iman **Mr.Dereje kifle moges(student number 55764444)** wa doctor kasocda jamacada **UNISA(university of south Africa)** kaso samayn dona darasad kor logu qadayo herka daboolka ee qorshaynta qoyska

Sida dateed waxan laydin faraya in ad gacan kusiisan inuu qabsom kormeerka lagu xaqiijinayo herka daboolka qorshaynta qoyska ee labada gobol

Dawlada Deegaanka Soomaalida Xafiiska Caafimaadka
የሶማሊ ክልል መንግስት የጤና ቢሮ

Mahadsanid

Siraj Nuren Hasan
Health Promotion,Disease Prevention
& HEP Core Process Owner

☎ 05) 752022 Head Bureau
☎ (05) 754740 Bureau Head
☎ (05) 752844 Administration & fin.
☎ (05) 753343 Pharm. Dep't
☎ (05) 75 2466 Epidemiology
✂ (05) 754739 Training Dep't
✂ (05) 754738 Malaria Dep't
✂ (05) 754102 Deputy Head
✂ (05) 752472 Planning Dep't
🖷 fax (05) 75 2465
P.O.Box- 238
Jijiga - Ethiopia
Email- SRHB 2002@yahoo.com
Email- hiorn.rhb.@telecom.net.et

ANNEXURE D: INFORMATION LEAFLET AND CONSENT

PARTICIPANTS INFORMATION LEAFLET

Title of Study: Development of strategies to reduce unmet need for modern contraception among agro-pastoral women in eastern Ethiopia

Name(s) and affiliation(s) of researcher(s):

Dereje Kifle Moges who is a lecturer at Haramaya University, PO Box 163, Dire Dawa, Ethiopia. Tel +251 911660190, Cell phone: +251 911660190, +251 922379572
Prof RM Mmusi-Phetoe, University of South Africa, Pretoria, South Africa

We are carrying out a research and we would like you to take part.

Why the proposed research? We would like to seek information from married agro-pastoral women and family planning service providers in Eastern Ethiopia particularly selected *kebeles* of Somali Regional State related to utilization of modern contraception so as to reduce unintended pregnancy. I hope that when I get information on your experiences, it will help me understand what will help support agro-pastoral women with unmet need for modern contraception.

What will happen during the study? There are three groups of participants in this study.

The first group is those agro-pastoral women who are chosen for an interview with a structured questionnaire in a language (Somali) that respondents easily understand and respond. The second group is married agro-pastoral women who are selected for an individual in-depth interview. There is no right or wrong answer and you can answer in your own words. The duration for the interview will be between 45 to 60 minutes. The data to be collected will be about the things you have gone through concerning use of family planning contraception modern methods and how you have managed and cope with your pregnancies. You will be asked to sign or thumb print a consent form as appropriate. The third group consists of family planning of service providers whose tasks are related to contraception service delivery.

Will anyone know what I told you? All your information will be kept confidential. The conversation will be recorded on tape and later written in words. Your name will not be recorded on the tape or paper. A fake name and number and will be given to your conversation. The only people that will know about our conversation will be my supervisor and a transcriber. All information that has your name on it will be kept under lock and key at a separate place from the written information for 5 years after the study.

What are the possible gains and harm to you? The study may not have any direct benefit for you at the moment, but I hope that the study will propose intervention strategies that will help agro-pastoral women use modern contraception so that their contraception need will be met and the health of the woman and children will be kept. It will also enable family service providers design programmes that will help such women access and utilize modern contraceptives to plan their pregnancies. It is not expected that being in this study will be harmful to you but you may feel emotional about telling your story of your unintended pregnancies or sexual life and problems you face. When that happens, the researcher will refer you to someone who can talk to you to relieve you of your emotions without any financial cost you.

Can I withdraw from the study? You are free to leave the study at any point during the study even after you have agreed to be part of the study. Such withdrawal will not have any effect on any health service that you require from health care providers.

Attached to these leaflets is the consent form to be signed or thumb printed as means of agreement to take part in the study.

Contacts If you have any concerns, you may send an electronic mail (e- mail) or phone the researcher or his supervisor using the following addresses:

Researcher: Mr Dereje Kifle Moges (Name of Researcher): d_kifle@yahoo.com/ 55764444@mylife.unissa.ac.za
Supervisor: Prof RM Mmusi-Phetoe: emphetrm@unisa.ac.za
Chair person of Ethics Committee: Prof Maritz: maritjie@unisa.ac.za

CONSENT FORM

University of South Africa

Department of Health Studies

Title of Study: Development of strategies to reduce unmet need for modern contraception among agro-pastoral women in eastern Ethiopia

RESEARCH PROMOTER: Prof RM Mmusi-Phetoe

RESEARCHER: Mr Dereje Kifle Moges (Name of Researcher)

This document will be translated into local Somali language for participants who cannot communicate comfortably in the English language

STATEMENT OF PERSON OBTAINING INFORMED CONSENT:

I have received a copy of the information leaflet and have read it. I have full explanation about this research and have been given adequate information that I am not forced to participate in this study but to volunteer.

Respondent/Participant Consent Form

I, _____, understand that I am being asked to participate in a research study entitled **Development of strategies to reduce the unmet need for modern contraception among agro-pastoral women in eastern Ethiopia** I am aware of the objectives of the study. I have been informed that all of the information I am giving will be kept confidential and used solely for the study. I also understand that my participation in this study is voluntary so that that I can withdraw at any time if I want to do so. I have also been informed that that my identity will not be revealed while the study is being conducted or when the study is published.

Signature /thumb print …….. Date ……..

Student: Mr Dereje Kifle Moges
Contact numbers: +251 911660190, Cell phone: +251 911660190, +251 922379572
E-mail: 55764444@mylife.unisa.ac.za

Supervisor: Prof RM Mmusi-Phetoe: emphetrm@unisa.ac.za

Chair person of Ethics committee: Prof Maritz: maritjie@unisa.ac.za

ANNEXURE E: INTERVIEWER ADMINISTERED QUESTIONNAIRE (ENGLISH VERSION)

All information herewith provided will be treated confidentially.

Information to be provided by the agro-pastoralist women.

Put "✓" in the box corresponding to the alternative which is applicable.

SECTION A: BIOGRAPHICAL DATA

Ref no:		
Today's date:	Day | Month | Year	
101	In which age category do you fall?	
102	What is your educational level?	
103	What is your ethnicity?	

1	15-19	
2	20-24	
3	25-29	
4	30-34	
5	35-39	
6	40-44	
7	45-49	

1	Illiterate	
2	Write and read only	
3	Primary school (1-8)	
4	Secondary school completed	
5	Grade twelve +1 and above	

1	Somali	
2	Oromo	
3	Other (specify) _____	

104	What is your occupation? 1 Government employee 2 Private employee 3 Merchant 4 Housewife 5 Student 6 Daily labourer 7 Other (specify)_____	
105	Indicate your religion. 1 Muslim 2 Orthodox Christian 3 Catholic 4 Protestant 5 Other (specify)_____	
106	How many living children do you have? 1 None 2 1-2 3 3-4 4 5-6 5 7-8 6 9 and above	
107	What is the nature of your marriage or union? 1 Monogamous 2 Polygamous	
108	What was your age when you got married or in union with your partner? 1 15-19 2 20-24 3 25-29 4 30-34 5 35-39 6 40-44 7 45-49	

109	What is your partner or husband's/spouse's occupation? 1 Government employee 2 Private employee 3 Merchant 4 Self employed 5 Unemployed 6 Daily laborer 7 Other (specify)_____	
110	What is your partner or husband's/spouse's education? 1 Illiterate 2 Write and read only 3 Primary school (1-8) 4 Secondary school completed 5 Grade twelve +1 and above	

SECTION B: KNOWLEDGE ABOUT FAMILY PLANNING CONTRACEPTION METHODS USED BY WOMEN AND MEN

(Put "✔ " on the choice that best reflects opinion of the women about the topic under discussion**)**

No	**Questions**	Yes	No
201	Have you ever heard of any methods that women can use to avoid or delay pregnancy?		If No, skip **202-215**
Modern contraception			
202	Women can have an operation to avoid having any more children (female sterilization).		
203	Men can have an operation to avoid having any more children (male sterilization)		
204	Women can have a loop or coil placed inside them by a doctor or a nurse (IUD).		
205	Women can have an injection by a health provider that stops them from becoming pregnant for one or more months (Injectables).		
206	Women can have one or more small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years (Implants).		
207	Women can take a pill every day to avoid becoming pregnant.		
208	Men can put a rubber sheath on their penis before sexual intercourse (Male condom).		
209	Women can place a rubber sheath in their vagina before sexual intercourse (female condom).		
210	As an emergency measure within three days after they have unprotected sexual intercourse women can take special pills to prevent pregnancy (emergency contraception)		

Traditional method			
211	Women can use a cycle of beads to count the days they are most likely to get pregnant and avoid sexual intercourse during those days (Standard Days Method).		
212	Lactational Amenorrhea Method (LAM)		
213	Every month that a woman is sexually active she can avoid pregnancy by not having sexual intercourse on the days of the month she is most likely to get pregnant (Rhythm Method).		
214	Men can be careful and pull out before climax (Withdrawal)		
215	Have you heard of any other ways or methods that women or men can use to avoid pregnancy?	Specify _____	

SECTION C: PRACTICES IDENTIFIED CONCERNING MODERN CONTRACEPTION UTILISATION

No	Items	Responses
301	Are you pregnant?	1. Yes (If Yes, go to 401)
		2. No (If No, go to 302)
		3. Not sure (If not sure, go to 302)
302	Are you currently doing something or using any method to delay or avoid getting pregnant?	1. Yes
		2. No
303	If Yes, which method are you using?	1. Female Sterilization
		2. Male Sterilization
		3. IUD
	Circle all mentioned.	4. Injectables
		5. Implants
		6. Pill
		7. Male Condom
		8. Female Condom
		9. Diaphragm/Foam
		10. Standard Days Method
		11. Lactational Amen. Method
		12. Rhythm Method
		13. Withdrawal
		14. Other methods
304	Where did you obtain the contraception method from?	1. Govt. hospital
		2. Govt. Health center
		3. Govt Health station/clinic
		4. Govt. Health post/HEW
		5. Other public (specify)_____
		NGO
		6. NGO health facility
		7. Voluntary community health workers
		8. Other NGO (Specify)
		PRIVATE MEDICAL SECTOR
		9. Private hospital
		10. Private clinic
		11. Pharmacy
		12. Other private medical (specify)

		OTHER SOURCE DRUG VENDOR/STORE
		13. Shop
		14. Friend/relative
		15. Other_____
305	What would be the reasons for you to use contraceptives methods?	1. Child spacing
		2. No need for more children
		3. Other(specify) _____
306	What are the benefits you think one can derive from family planning? (you can circle more than one)	1. Control number of birth
		2. Prevent unplanned/unwanted pregnancy
		3. Prevent sexually transmitted infection
		4. Enhance sexual performance
		5. No significant positive effect
		6. Don't know
307	If your response to Q.301 above is "No", why are you not using any contraceptives? (you can circle more than one)	1. Spouse does not approve
		2. It is against religion teaching
		3. Afraid of side effects
		4. I do not know where to access them
		5. Other (specify

SECTION D: Unmet need for modern contraception

No	Questions		
401	Are you pregnant at the moment?	1. Yes.....Go to 402	
		2. No .....Go to 406	
		3. Unsure……Go to 406	
402	If yes, did you want to get pregnant at that time?	1. Yes	
		2. No..... Go to 403	
403	Did you want to have a baby later on or did you not want any (more) children?	1. Later	
		2. No more	
404	After the child you are expecting now, would you like to have another child, or would you prefer not to have any more children?	1. Have another child	Check 401
		2. No more	
		3. Undecided/don't know	
405	After the birth of the child you are expecting now, how long would you like to wait before the birth of another child? Indicate in figures to the right response.	1. 0-24 Months	
		2. 2+ years	
		3. Says she can't get pregnant	
406	If you are pregnant, have you ever used anything or tried in any way to delay or avoid getting pregnant?	1. Yes	Indicate the method
		2. No	
407	If NOT pregnant or unsure a) Are you currently doing something or using any method to delay or avoid getting pregnant?	1. Yes	Indicate the method
		2. No	

408	If NOT pregnant or unsure b) How long would you like to wait from now before the birth of (a/another) child?	1. Months.....	
		2. Years ...	
		3. Soon/now …	
		4. Wants no more	
		5. Says she can't get pregnant…	
		6. Other (specify)	
409	When did you give the last birth?	Month_____ year_____	
410	Has your menstrual period returned since the birth of.. (last birth)	1. Yes	
		2. No	
411	When you got pregnant with the last birth, did you want to pregnant at that time?	1. Yes	
		2. No	Go to 412
412	Did you want to have a baby later on or did you not want any (more) children?	1. Later	
		2.No more	

SECTION E CHALLENGES/BARRIERS RELATED TO THE FAMILY PLANNING SERVICE CENTERS AND THE HEALTH CARE PROVIDERS WITH REGARD TO CONTRACEPTION USE

No	Questions	
501	Do you know any family planning service centre that is close to your house?	1. Yes
		2. No
502	If Yes, how long does it take for you to arrive at the clinic?	1. Less than 1/2 hr
		2. 1/2 to 1 hr
		3. 1 to 2 hrs
		4. More than 2 hrs
		5. Don't know
503	Are the hours at the facility when open convenient for you?	1. Yes
		2. No
		3. Don't Know
504	From Item 503 If no what time will be most convenient for you.	1. Early in the morning
		2. Over lunch hour
		3. Afternoon
		4. Evening/night
		5. weekends
		6. Holidays
		7. Others_____
505	How long do you wait between the time you first arrived at the clinic and get family planning service?	1. No wait
		2. Less than 1/2 hr
		3. Half to one hour
		4. 1 hour and above
		5. Don't know
506	How do you feel about your waiting time?	1. No waiting
		2. Short
		3. Long
		4. Don't know
507	Do you feel that you received services that you needed?	1. Yes
		2. No
		3. Some but not adequate service
		4. Other (specify)----------

508	If not why?	1. The health care provider did not need to give me the service
		2. The service I needed was not available
		3. The time was too short to be attended to
		4. Other (specify). _____
509	During consultation, was the health care provider easy to understand?	1. Easy to understand
		2. Difficult to understand
		3. Did not understand
510	If easy to understand, did the answer satisfy you?	1. Yes
		2. No
		3. Partially
511	Was there enough privacy during consultation?	1. Yes
		2. No
512	Have you ever been denied contraceptive/ family planning services before?	1. Yes
		2. No
513	If yes, what was the problem/reason (Specify)	
514	Have you ever been turned back or refused services from family planning service centre during working hours before for any reason?	1. Yes
		2. No
515	From Item 514: If yes what was the reason (specify)_____	
516	Have you ever been visited by a Health Extension Workers to get modern contraception services?	1. Yes
		2. No
517	Overall, what do you think about the quality of family planning/ modern contraception services in your area?	1. Very good
		2. Good
		3. Not good
		4. Don't know

SECTION F: CHALLENGES/BARRIERS RELATED TO THE SUPPORT SYSTEM WITH REGARD TO MODERN CONTRACEPTIVE USE

601	Does your religious belief act as a barrier to modern contraceptive use	1. Yes
		2. No
		3. Don't know
602	Does your spouse/partner support you about the use of family planning /modern contraception?	1. Yes
		2. No
		3. Not applicable
603	Can you decide use of modern contraception without the influence of your partner	1. Yes
		2. No
604	Is your family/relatives in support of your use of modern contraception?	1. Yes
		2. No
		3. Not applicable
605	Has money ever hindered you from the use of modern contraception?	1. Yes
		2. No
		3. Not applicable
606	What other challenges/barriers hinder you not to use modern contraception methods?	

THANK YOU FOR YOUR PARTICIPATION

ANNEXURE F: INTERVIEWER ADMINISTERED QUESTIONNAIRE (SOMALI VERSION)

KU RID SANDUUQA "✔"

QAYBTA A: MACLUUMAADKA TAARIIKHDA SHAKHSIGA

Lambarka tixraaca			

Maalin	**Maalin**	**Bisha**	**Sannad**

101	Daddaa

1	15-19	
2	20-24	
3	25-29	
4	30-34	
5	35-39	
6	40-44	
7	45-49	

102	Heerka waxbarashada

1	Kaan waxba baraan	
2	Akhrinta iyo q rista	
3	Dugsiga Hoose Dhexe (1-8)	
4	Dugsiga sare (9-12)	
5	Dugsiga sare iyo wixii ka sareeya (12+)	

103	Qoomiyada shakhsiga

1	Somali	
2	Oromo	
3	Kuwa kale u sharax	

104	Waa maxay shaqadaada ? 1 Shaqale dawladeed 2 shaqo gaar looleeyayay 3 Ganacsi 4 guri Joog 5 Mashaqeeyo 6 muruq maal 7 Kuwa kale u sharax
105	Diinta 1 Muslim 2 Ortodox 3 Catholic 4 Protestant 5 Kuwa kale u sharax
106	Imisa carruur –ah –ayaad haysataa? 1 Waxba (0) 2 1-2 3 3-4 4 5-6 5 7-8 6 9 iyo wax kesereyaa
107	ninkaagu xaas kale maguur saday? 1 Hal 2 Ninkeygu wuxuu leeyahay xaas kale
108	imisa sano ayaad –ahayd markii aad guursatay? 1 15-19 2 20-24 3 25-29 4 30-34 5 35-39 6 40-44 7 45-49

109	Waa maxay shaqada ninkaagaada? 1 Shaqale dawladeed 2 shaqo gaar looleeyayay 3 Ganacsi 4 iskii ayu u shaqaystaa 5 Mashaqeeyo 6 muruq maal 7 Kuwa kale u sharax
110	Heerka Waxbarashada Ninkaagaa 1 Waxba mabaran 2 Qoraalka iyo akhriska kaliya 3 Dugsi hoose dhexe 4 Dugsi sare 5 Dugsi sare iyo wixika sareeya

QAYBTA B: KHIBRADA IYO AQOONTA AAD U LEEDAHAY QORSHANTA QOYSKA IYO HABABKA KA HORTAGIDA UURKA EE AY ITICMAALAN RAGA IYO DUMARKA (SAX "✓ " TAKU HABOON CIWANKA SARE EE AY KU JAWAABTAY HAWEENAYD

Lambarka	Su'aasha	Haa	Maya	
201	hada kahor miyaad maqashay hababka lagaga hortago uurka?			Haddii maya, ka bood 202 - 215
hababka casriga ah ee uurka lagaga hortago				
		Haa	Ma aqaano	
202	Dumarka aan u baahnayn inay yeeshaan carruur badan Qalitaan ayaad sameyn kartaa ((Female sterilization)			
203	Ragga aan u baahnayn inay yeeshaan carruurbadan Qalitaa ayaad sameyn kartaa (Male sterilization)			
204	Dumarka waxay gashan karaan balastiga ilmogaleenka iyadoo kacawinayo dakhtarku si ay uurka hortagto uurka (IUD)			
205	Dumarka waxaa lasiin ka hotraga uur qaadida waxaana caawin doona xirfadle caafimad (Injectables)			
206	Dumarka waxay awoodaan inay ka hortagaan uurka hal sano iyo wixiin ka badan iyaga oo isticmaalaya kana qaadanaya gacanta sare (Implants)			
207	Dumarku waxay qaadan karaan kaniinada ka hortagga uurka si looga hortago uurka			
208	Raggu waxay heli karaan kondhom si ay uga hortaggan uurka muddada galmada (Male condom).			

209	Dumarku waxay semaysen doonan inta aanay galmo samayn ka hor. kondhom si ay uga hortaggan uurka muddada galmada ((Female condom).			
210	Dumarku aan qaadan ama ay ilowdoo kaniinada waxay –qaadan karaan ilaa maalinta saddexaad (Emergency contraception)			
Hab-dhaqameedkii hore ee ka horrtaga uurka				
211	Habka “standard days method” waa habka lagaga hortago uur qaadista iyadoo haweenaydu tirsanayso wareega dhiiga caadada waxay ka fogaankartaa galmada maalmaha ay ku haboontahay inay uur qaado			
212	Habka “LAM” waa habka lagaga hortago uur qaadista iyadoo haweenaydu naaska jaqsiinaysa ilmaha (Lactational Amenorrhea Method)			
213	Habka “rhythm method” waa habka lagaga hortago uur qaadista iyadoo haweenaydu ka fogaanaysa galmada inta ay ku maalmaha ay ugu haboontahay inay uur qaado ee bisha kagag jira			
214	Habka “withdrawal” waa habka lagaga hortago uur qaadista iyadoo ninku kala soo baxaao xubinkiisa taranka ka hor inta aanay ka iman manidu isaga oo hubsanaya			
215	Miyaad maqashay hab ama nooc kale oo lagaga hortago uur qaadista oo ay isticmaali karaan raga iyo dumarku? _____			

QAYBTA C: ISTICMAALKA IYO KA FAAIDAYSIGA HABKA KA HORTAGA UURKA EE CASRIGA AH

Lambarka	Su’aal	Jawaab
301	Ma uur baad leedahay?	1. Haa -------(401) 2. Maya -----(302) 3. ma hubo----- (302)
302	Ma waxaa jira wax aad uurka kaga hortagtid oo aad hada isticmaashaa	1. Haa 2. Maya
303	Haddii jawaabtaadu tahay ‘haa’, kee baad isticmaashaa?	1. Dumark dhalma goys (Female Sterilization) 2. Ragga dhalma goys (Male Sterilization) 3. Balaskig oo logaliyo miinkaa (IUD) 4. Cirbadaha lesiyoo. (Injectables) 5. Gaantaa laguu asoo (Implants) 6. Kaniinada (Pill) 7. Kondomka raga (Male Condom) 8. Kondomka Dumarka (Femae Condom) 9. Diafran (Diaphragm/Foam) 10. Iska ilaalinta galmada, maalmaha uurka (Standard Days Method) 11. Naas Nujiinta Badaan (Lactational Amen. Method) 12. in –aad ogatoo xisaabinta wakhtiyada caadada ee hore si logga fogaada galmada ka hortaga uurka (Rhythm Method).

		13. Shahwada raga in aay ku dadiiyan dibeddaa (Withdrawal) 14. Kuwa kale_____
304	halkeed ka hashay habkan aad isticmaashay ee ka hortaga uur qaadista?	1. Isbitaalka dawladda 2. waaxda caafimaadka ee dawladda 3. Rugta caafimaadka ee dawladda 4. xanaanada dawlada 5. Xarumo kale _____ 6. Goobta caafimaadee aan dawladda –ahayn. 7. goobaha caafimaadk ee tabarucaadka 8. Adeegga caafimaadka dadweynaha ee aan dawliga ahayn _____ 9. Isbitaalka Gaarka ah 10. Kiliiniga gaarka -ah 11. Farmasiiga 12. kuwa kade ee gaarka loo leeyahay _____ 13. Dukaanka 14. Saaxib / qaraabo 15. Meel kale _____
305	waa maxay sababta aad u isticmaashaa hababka lagaga hotrago uurka?	1.kala korinta carurta 2.Ma rabo in aan carruur badan dhalo 3.sabab kale
306	Waa maxay faa'idooyinka qaadashada ka hortaga uurka?	1. Siloo xakameeyo dhalashada 2. Siloo joojiyo uurka aan larabin 3. siloo xakameeyo xanuunada laga qaado galmada 4. waxka barashadd khibradd galmado xolasha. 5.wax faaido ah male 6. ma garanayo.
307	Hadii su'aasha 302 aad kaga jawabtay maya waa maxay sababata aad u qaadanwayday?	1. Ninkeygu ma ogola 2. Diintaydu ma ogola 3.cabsi inay dhibaato iga soo gaadhe 4. Ma garanayo halka laga helo ka hortaggu uurka. 5. Sabab kale soo sharah.

QAYBTA D: BAAHIDE KA HORTAGA UUR QAADISTA CASRIGA AH EE AAN DHAMAYSTIRNAYN

Lambarka	**Su'aal**		
401	Hadda uur maad leedahay?	1. Ha (tag 402) 2. Maya (tag 407) 3. Ma Hubo (tag 407)	
402	Hadii ay jawaabtu tahay "Haa" miyaad rabtay in aad uur qaadid wakhtigaas ?	1. Ha 2. Maya (tag 403)	
403	Goormaaad rabtaa inaad ilmo dambe dhashid, mise marabtidcaruurkale?	1. mudo kadib 2. Marabo in aan heysto carruur badan	
404	Markaad ilmahaa uurka –aad kusidid aad dheshid kadib marabtid inaad dib u dhashid?	1. Waxaan rabaa inaan ilmokale helo. 2. Ma doonayo inaan mar kale dhalo 3. Ma huboo.	

405	uurkan aad hada leedahay marka aad dhashid kadib mudolntee leeg ayaad rabtaa inaad uur kale qaadid? Tiro kusheeg	1. 0 ilaa 24 Bilood. 2. 2+ Sano. 3. Ma uraysan karo	
406	Haddii aad uur leedahay, waligaa ma isticmaashay hababka iyo waxyaaba ha uur qaadista lagaga hortago majiraa?	1. Haa 2. Maya	Sheeg _____
407	Hadii aad leedahay uur amase aanad hubin A- majiraa ka wax yaabo aad isticmaasho si aad uurka uga hortagtid imika?	1. Haa 2. Maya	Sheeg _____
408	Hadii aanad lahayn wur amase aanad hubin B- in aad ilmo dhashid mudo intee leeg ayaad sugilahayd	1. ____Bilood 2. ____Sanad 3. ugu dhakhsaha badan 4. ma rabo caruur kale 5. Waxay sheegtay in aanay uuraysan karin 6. Wax kale	
409	Goorma ay ahayd markii kugu dombaysay ee aad cunug dhasho?	____ bisha,___sanad	
410	Markii aad dhashay cunugaagii kugu dambeeyay maisku aragtay dhiiga sunaha?	1. Haa 2. maya	
411	Maku faraxday uurka cunugaga u dambeeyay?	1. Haa 2. Maya (tag 412)	
412	Ma waxad jaceshay in aad ilmo kale dhashid/uur dambe aad qaadid mise maba rabtid carrur dambe inaad dhashid	1. mudo kadib 2. Marabo in aan heysto caruur kale	

QAYBTA E: DHIBAATOO YINKA KAA HAYSTA IN AAD ISTICMAASHO KA HORTAGA UURKA EE CASRIGA AH

Lambarka	**Suaal**	
501	majirtaa xarun kuu dhow adiga oo bixisa adeegyada Qorshaynta qayska?	1. haa 2. maya
502	hadii ay jawaabtu lahay “haa” wakhti intee leeg ayay kaa qaadatta inaad tagto xaruutaas?	1. inkayar 30 daqiiqo 2. 30 daqiiqo ilaa 1 saac 3. 1 sacad illa 2 sacad 4. in ka badan 2 saac 5. ma garanaayo
503	maku qanacsantahay sacadaha shaqada ee xarantu furantahay?	1. haa 2. maya 3. ma garanaayo
504	Su’aasha 503 hadii aytahay “maya” wakhtigee ayaa kugu haboon in la furo	1. subixii/barqadii 2. bacdal qadada/qadada kadib

	xarunta (sacadaha shaqada)?	3. casarkii 4. fiidka 5. dhamaadka to do baadka 6. maalmaha ciida/fasaxa 7. xili kale
505	marka aad timaadid xarunta wakhti intee leeg ayaad sugta inaad heshe adeega Qorshaynta Qogsa?	1. ma sugo/ hore ayaa la iisiiyay 2. in ka yar 30 daqiiqo 3. 30 daqiiqo ilaa 1 saac 4. 1 saac iyo dheeraad 5. ma garanaayo
506	si deed u aragtaa wakhtigakaaga baxa inta aad sugaysid adeega?	1. masuge 2. wakhti yer 3. wakhti dheer 4. ma garanaayo
507	Maka heshaa adeegii aad rabtay xaruntaas (maku qanacsantahay adeega bixinti xarunta?	1. haa 2. maya 3. waa is ka caadi 4. kale (sheeg)
508	Hadii aanad helin adeega aad rabtay waa maxay sababtu?	1. adeeg bixiya ayaan ogolayn in aan qaato/helo adeega 2. kama helo adeega aan uga baahnaa markaas 3. wakhtigaa yar 4. kale (sheeg)
509	sifudud miyay kuu fahmaan xir fad layaasha caafimaadku marka ay ku jiraan sacadaha adeeg bixinta?	1. way fududahay 2. way adagtahay 3. isma fahamo
510	hadii ay “way fududahay” tahay jawaabtu miyaad ku qanacdaa jawaabta ay ku siiyaan?	1. haa 2. maya 3. waa is ka caadi
511	marka adeega aad qaadanaysid masigaar ah ayaad uheshaa?	1. haa 2. maya
512	Hada kahor miyay kuu diideen ka hortaga uurka iyo qorshaynta qayska?	1. haa 2. maya
513	hadii ay “haa” tahay, waa maxay dhibaatadu/ sababtu tahay in ay kuu diidaan	_____
514	wali miyay ku diideen in ay ku siiyaan a deega aad rabtay iyadoo lagu jiro saacadala shaqada?	1. haa 2. maya
515	Haddi ay “Haa” tahay waa maxay sababtu?	_____
516	Wali miyay ku booqdeen adeeg bixiyayaasha caafimaadku?	1. haa 2. maya
517	Guud ahaan side baad u aragtaa tayada ay leedahay xaruntaasi?	1. aad u fiican 2. wanaagsan 3. ma wanaagsan 4. Ma garanayo

QAYBTA F: DHIBAATOO YINKA KAA HAYSTA IN AAD ISTICMAASHO KA HORTAGA UURKA EE CASRIGA AH (NIDAAMKA TAAGEERADA)

601	Diintada miyaa kaa hortaagan in aad isticmaasho ka hortaga uurka?	1. haa 2. maya 3. Ma garanayo
602	Ninkaagu myuu kaa caawiyaa in aad isticmaasha Qorshaynta qoyska iyo ka hotrtaga uurka ee casruda ah?	1. haa 2. maya
603	Awood miyaad u leedahay in aad go'aansato in add isticmaasho kahortaga uurka iyadoon dhib kusoo gaadhin?	1. haa 2. maya
604	Qayskaagn miyay kaa caawiyaan in aad isticmaasho ka hortaga uurka casriga ah?	1. haa 2. maya
605	In aad isticmaasho ka hortaga uurka ma waxaa kuudiidem xalad dhaqaake?	1. haa 2. maya

606	Majiraan aqabado kale oo kuu diidan in aadisticmaasho ka hortaga uurka ee habka casriga ah?
607	Maxay kula tahay hadii dumarka xoolo dhaqato beeralaydu istacmaalaan ka hortaga uur qaadista casriga ah fikradaada?

Mahadsanid

ANNEXURE G: INDIVIDUAL IN-DEPTH INTERVIEW FOR FAMILY PLANNING SERVICE PROVIDERS

SECTION A: DEMOGRAPHIC DATA

1	**Date:** Day | Month | Year | | | |
2	What is your gender category? 1 Male 2 Female
3	What age category do you belong to? 1 20-30 2 30-40 3 40-50 4 50-60
4	Current position _____
5	How many years have you been appointed in this current position? 1 2-3 years 2 3-4 years 3 4-5 years 4 above 5 years
6	What is your highest professional qualification? 1 Diploma in general nursing 2 BSc nurse/midwifery/public health 3 Masters in Nursing,/ midwifery/public health 4 Other _____
7	For how many years have you been working as a professional nurse/current position? 1 2-5 2 6-10 3 11-15 4 16-20 5 20 or more
8	Place of work _____

Answers will be audio recorded and the researcher will take notes where necessary

Grand Tour Question: “Tell me, what do you understand by use of modern contraception methods to reduce the unmet need for modern contraception for agro-pastoral women**?**

Probing questions will be asked in response to the answers for further exploration to answer the research questions.

1. What modern contraceptive methods do you provide at the service center?
2. How can agro-pastoral women easily get modern contraception they look for?
3. What modern contraceptive methods do most women seek in in this health facility? Why?
4. What are the challenges/factors/barriers that hinder agro-pastoral married women not to meet their modern contraception needs?
5. What suggestions can you make to improve agro-pastoral women to use of contraceptive methods?
6. What strategies can we develop to reduce unmet need for modern contraception among married agro-pastoral women in your area?
7. What role do men play in relation to modern contraception?

THANK YOU FOR YOUR PARTICIPATION

ANNEXURE H: INDIVIDUAL IN-DEPTH INTERVIEW FOR AGRO-PASTORAL WOMEN

INSTRUCTIONS

All information herewith provided will be treated confidentially. It is not necessary to indicate your name.

Put an "✔" in the box corresponding to the chosen alternative (Section A)

SECTION A: BIOLOGICAL DATA

Answer the question by placing an "X" in the box corresponding to the alternative which is applicable to you

Ref no:		
Today's date:	Day | Month | Year	9
101	In which age category do you fall?	

1	15-19	
2	20-24	
3	25-29	
4	30-34	
5	35-39	
6	40-44	
7	45-49	

102	What is your educational level?	

1	Illiterate	
2	Write and read only	
3	Primary school(1-8)	
4	Secondary school completed	
5	Grade twelve +1 and above	

103	What is your ethnicity? 1 Somali 2 Oromo 3 Other (specify) _____	
104	What is your occupation? 1 Government employee 2 Private employee 3 Merchant 4 House wife 5 Student 6 Daily laborer 7 Other (specify)_____	
105	Indicate your religion 1 1.Orthodox Christian 2 2.Catholic 3 3.Protestant 4 4.Muslim 5.Other (Specify)-------	
106	How many living children do you have? 1 None 2 1-4 3 5-8	
107	What is the nature of your marriage? 1 Monogamous 2 Polygamous	
108	What was your age when you got married? 1 15-19 2 20-24 3 25-29 4 30-34 5 35-39 6 40-44 7 45-49	

109	What is your husband's/spouse's occupation? 1 Government employee 2 Private employee 3 Merchant 4 Housewife 5 Student 6 Daily labourer 7 Other (specify)_____	
110	What is your husband's/spouse's education? 1 Illiterate 2 Write and read only 3 Primary school (1-8) 4 Secondary school completed 5 Grade twelve +1 and above	

SECTION B

Grand Tour Question: "Tell me, what are the factors/ issues/barriers that influence use of modern contraception to reduce the unmet need for modern contraception in your life as an agro-pastoral woman?

1. Have you ever heard of contraceptives?
2. If yes, what are they? From whom did you hear/learn about contraceptive methods?
3. Have you ever used contraceptives?
4. What contraception have you used?
5. If yes, what are the factors that lead to using? Why do you think are the barriers that hindered other married women not to use modern contraception?
6. If no, what are the factors/barriers hindered you not to use modern contraception.

Probe

Personal factors (lack of time to go to health facility, religion (religious teachings), lack of money to get the service and buy the contraceptives, making decision to use contraception, money etc…)

Infrastructure related (unavailability of health facility that gives modern contraception, distance of the health facility, lack of transportation, etc

Service related (quality of the service, service providers are not in their office during working hours, privacy and confidentiality, the cost of getting the service and contraceptives, behaviour and competence of health service providers (Are they well-motivated to serve you?), lack of modern contraceptives in the health facility, service adaptable to the situation of the women, etc.

Partner/relatives related (Attitude of partner towards modern contraception, attitude of relatives/ parents towards modern contraception, etc.)

7. Please mention improvements that you need to be made on service provision of the modern contraception in particular and family planning in general.

ANNEXURE I: LETTER FROM THE STATISTICIAN

O2 September 2019

RE: Statistical Analysis of PhD Thesis in Public Health: DK Moges

This letter serves to confirm that I assisted Mr. Dereje Kifle Moges in the analysis of the data (with SPSS version 24) of a PhD thesis entitled 'Development of Strategies to Reduce Unmet Need for Modern Contraception among Agro-Pastoral Women in Eastern Ethiopia'.

Sincerely yours,

Endalew G.

ANNEXURE J: LANGAUGE EDITING CERTIFICATE

Between the lines editing

Leatitia Romero
Professional Copy Editor, Translator and Proofreader
(BA HONS)

Cell: 083 236 4536
leatitiaromero@gmail.com
www.betweenthelinesediting.co.za

23 APRIL 2020

To whom it may concern:

I hereby confirm that I have edited the thesis entitled: "DEVELOPMENT OF STRATEGIES TO REDUCE UNMET NEED FOR MODERN CONTRACEPTION AMONG AGRO-PASTORAL WOMEN IN EASTERN ETHIOPIA". Any amendments introduced by the author hereafter are not covered by this confirmation. The author ultimately decided whether to accept or decline any recommendations made by the editor, and it remains the author's responsibility at all times to confirm the accuracy and originality of the completed work.

Leatitia Romero

Affiliations

PEG: Professional Editors Group (ROM001)
EASA: English Academy of South Africa
SATI: South African Translators' Institute (1003002)
SfEP: Society for Editors and Proofreaders (15687)
REASA: Research Ethics Committee Association of Southern Africa (104)

ANNEXURE K: TURNITIN ORIGINALITY REPORT

Turnitin Originality Report

Final Thesis by Dereje Kifle Moges

From Revision 3 (CHS M&D Students)

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